THE

REGISTRAR GENERAL'S

STATISTICAL REVIEW

OF

ENGLAND AND WALES

FOR THE YEAR

1950

TEXT, MEDICAL

NOTE : It is being considered whether in the Text volume for 1951 (which will resume the pre-war practice of a combined Medical and Civil commentary relating to one year only) there is justification for an Index in addition to a fairly detailed Table of Contents.

The Medical Text volumes for 1940–45, 1946–47, 1948–49 and 1950 and the Civil Text volumes for 1940–45 and 1946–50 have included indexes which contained references not only to the Text but also to the relevant Tables volumes ; this was convenient where the volume related to a number of years.

With the resumption of annual Text volumes it is desired to obtain their publication with as little delay as possible after the issue of the separate Tables volumes. The preparation of an index necessarily holds up the production of a volume and increases its cost. Unless there is evidence that the Index serves a really useful purpose in these volumes, it will be omitted from the Text volumes for 1951 and subsequent years.

Readers are therefore invited to write to the Registrar General (Statistics Division), Somerset House, London, W.C.2, if they have any views on the future omission of the index. If the yearly index is omitted, consideration will be given to the desirability of a quinquennial or decennial cumulative index to the volumes.

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EXPLANATORY NOTES

1. Table Numbering

Of the tables referred to in this review, those numbered in Arabic numerals, will be found in "Tables, Part I—Medical", and those lettered will be found in "Tables, Part II —Civil", for the year in question, whilst those numbered in Roman numerals appear in this volume.

2. Significance Indication

Rates based upon less than 20 deaths or cases notified are distinguished by italic type as a warning to the user that the smallness of the experience may affect their significance. Rates given as 0 indicate that the rate is insignificant. A dash (—) in tables showing rates indicates that there were no deaths or cases.

3. Regions

The constitution of the Standard Regions of England and Wales used in this Volume is as follows:—

REGION I. *Northern.*	REGION IV. *Eastern.*	REGION VI. *Southern.*	*Wales II*
Cumberland.	Bedfordshire.	Berkshire.	Anglesey.
Durham.	Cambridgeshire.	Buckinghamshire.	Caernarvonshire.
Northumberland.	Ely, Isle of.	Dorset.	Cardiganshire.
Westmorland.	Essex, Part of[2]	Oxfordshire.	Denbighshire.
Yorkshire, North Riding.	Hertfordshire, Part of[3]	Southampton.	Flintshire.
	Huntingdonshire.	Wight, Isle of.	Merionethshire.
	Norfolk.		Montgomeryshire.
REGION II. *East and West Ridings.*	Suffolk, East.		Pembrokeshire.
Yorkshire, East Riding.	Suffolk, West.	REGION VII. *South Western.*	Radnorshire.
Yorkshire, West Riding.		Cornwall.	
	REGION V. *London and South Eastern.*	Devon.	REGION IX. *Midland.*
REGION III. *North Midland.*	Essex, Part of[4]	Gloucestershire.	Herefordshire.
Derbyshire, Part of[1]	Hertfordshire, Part of[5]	Somerset.	Shropshire.
Leicestershire.	Kent.	Wiltshire.	Staffordshire.
Lincolnshire—	London Admin. County.		Warwickshire.
Parts of Holland.	Middlesex.	REGION VIII. *Wales I.*	Worcestershire.
Parts of Kesteven.	Surrey.	Brecknockshire.	
Parts of Lindsey.	Sussex, East.	Carmarthenshire.	REGION X. *North Western.*
Northamptonshire.	Sussex, West.	Glamorganshire.	Cheshire.
Nottinghamshire.		Monmouthshire.	Derbyshire, Part of[6]
Peterborough, Soke of.			Lancashire.
Rutland.			

1. All except Buxton M.B., Glossop M.B., New Mills U.D., Whaley Bridge U.D., and Chapel en le Frith R.D.

2. All except East Ham C.B., West Ham C.B., Chingford M.B., Wanstead and Woodford M.B., Leyton M.B., Walthamstow M.B., Ilford M.B., Barking M.B., Dagenham M.B., Waltham Holy Cross U.D., and Chigwell U.D.

3. All except Barnet U.D., Bushey U.D., Cheshunt U.D., East Barnet U.D., and Elstree R.D.

4. All areas stated in 2 above.

5. All areas stated in 3 above.

6. All areas stated in 1 above.

4. Conurbations

The conurbation areas used in this volume were agreed by an interdepartmental committee, representing the principal Departments preparing statistics, as a means of securing uniformity and comparability in statistics published by Government Departments in the United Kingdom.

Conurbation is the word used to describe those areas of urban development where a number of separate towns have grown into each other and become linked by such factors as a common industrial or business interest, or a common centre of shopping, education, etc. The conurbations are each made up of a collection of complete local authority areas, constituted as follows:—

Tyneside

Durham		*Northumberland*	
Gateshead C.B.	Felling U.D.	Newcastle upon Tyne C.B.	Longbenton U.D.
South Shields C.B.	Hebburn U.D.	Tynemouth C.B.	Newburn U.D.
	Jarrow M.B.		Wallsend M.B.
	Whickham U.D.	Gosforth U.D.	Whitley Bay U.D.

West Yorkshire
Yorkshire, West Riding

Bradford C.B.
Dewsbury C.B.
Halifax C.B.
Huddersfield C.B.
Leeds C.B.
Wakefield C.B.

Aireborough U.D.
Baildon U.D.
Batley M.B.
Bingley U.D.
Brighouse M.B.

Colne Valley U.D.
Denby Dale U.D.
Denholme U.D.
Elland U.D.

Heckmondwike U.D.
Holmfirth U.D.
Horbury U.D.
Horsforth U.D.
Keighley M.B.

Kirkburton U.D.
Meltham U.D.
Mirfield U.D.
Morley M.B.

Ossett M.B.
Pudsey M.B.
Queensbury and Shelf U.D.
Ripponden U.D.
Rothwell U.D.

Shipley U.D.
Sowerby Bridge U.D.
Spenborough U.D.
Stanley U.D.

South East Lancashire

Cheshire

Stockport C.B.

Alderley Edge U.D.
Altrincham M.B.
Bowden U.D.
Bredbury and Romiley U.D.
Cheadle and Gatley U.D.
Dukinfield M.B.
Hale U.D.
Hazelgrove and Bramhall U.D.
Hyde M.B.
Marple U.D.
Sale M.B.
Stalybridge M.B.
Wilmslow U.D.

Disley R.D.

Lancashire

Bolton C.B.
Bury C.B.
Manchester C.B.
Oldham C.B.
Rochdale C.B.
Salford C.B.

Ashton under Lyne M.B.
Audenshaw U.D.
Chadderton U.D.
Crompton U.D.
Denton U.D.

Droylsden U.D.
Eccles M.B.
Failsworth U.D.
Farnworth M.B.
Heywood M.B.

Horwich U.D.
Irlam U.D.
Kearsley U.D.
Lees U.D.
Littleborough U.D.

Little Lever U.D.
Middleton M.B.
Milnrow U.D.
Mossley M.B.
Prestwich M.B.

Radcliffe M.B.
Royton U.D.
Stretford M.B.
Swinton and Pendlebury M.B.
Tottington U.D.

Urmston U.D.
Wardle U.D.
Westhoughton U.D.
Whitefield U.D.
Whitworth U.D.
Worsley U.D.

Limehurst R.D.

Merseyside

Cheshire

Birkenhead C.B.
Wallasey C.B.

Bebington M.B.

Ellesmere Port U.D.
Hoylake U.D.
Neston U.D.
Wirral U.D.

Lancashire

Bootle C.B.
Liverpool C.B.

Crosby M.B.

Huyton with Roby U.D.
Litherland U.D.

West Midlands

Staffordshire

Smethwick C.B.
Walsall C.B.
West Bromwich C.B.
Wolverhampton C.B.

Aldridge U.D.
Amblecote U.D.
Bilston M.B.
Brierley Hill U.D.
Coseley U.D.

Darlaston U.D.
Rowley Regis M.B.
Sedgley U.D.
Tettenhall U.D.
Tipton M.B.

Wednesbury M.B.
Wednesfield U.D.
Willenhall U.D.

Warwickshire

Birmingham C.B.

Solihull U.D.
Sutton Coldfield M.B.

Worcestershire

Dudley C.B.

Halesowen M.B.
Oldbury M.B.
Stourbridge M.B.

Greater London

London
(whole county)
Middlesex
(whole county)
Surrey

Croydon C.B.

Banstead U.D.
Barnes M.B.
Beddington and Wallington M.B.
Carshalton U.D.

Coulsdon and Purley U.D.
Epsom and Ewell M.B.
Esher U.D.

Kingston upon Thames M.B.
Malden and Coombe M.B.
Merton and Morden U.D.
Mitcham M.B.

Richmond M.B.
Surbiton M.B.
Sutton and Cheam M.B.
Wimbledon M.B.

Kent

Beckenham M.B.
Bexley M.B.
Bromley M.B.
Chislehurst and Sidcup U.D.
Crayford U.D.
Erith M.B.
Orpington U.D.
Penge U.D.

Hertfordshire

Barnet U.D.
Bushey U.D.
Cheshunt U.D.
East Barnet U.D.
Elstree R.D.

Essex

East Ham C.B.
West Ham C.B.

Barking M.B.
Chigwell U.D.
Chingford M.B.
Dagenham M.B.
Ilford M.B.

Leyton M.B.
Waltham Holy Cross U.D.
Walthamstow M.B.
Wanstead and Woodford M.B.

5. General

See also explanatory notes to the Parts I, Tables volumes.

INTRODUCTION

In 1950 classification of causes of death by the Sixth Revision of the International List was introduced and the presentation of mortality statistics was modified to accord with the World Health Organization's Nomenclature Regulations, 1948. These measures temporarily added much to the work of the General Register Office in preparing mortality statistics, with consequent delay in publication of this Review.

The Text or commentary volume of the Annual Review is published separately from the main tables, partly for convenience in use and partly to facilitate early publication of most of the basic detailed figures for the year without awaiting the scrutiny necessary to their full interpretation. The function of the Text volume is to set the basic statistics in perspective in the light of earlier trends and of current developments in medical knowledge and administration and to point the lessons which may be learned from them by presentation of suitable rates and diagrams and by written commentary. In fulfilling this function it is necessary to discuss any changes in practice, e.g. in classification or presentation, which are relevant to the interpretation of the statistics and to draw attention to those aspects of the statistics which may throw light on present medical problems or indicate others requiring investigation. The Review thus aims to provide a basis for future research as well as for present action and, while its early publication is desirable, its value will rest in the contribution it makes to the solution of problems which are likely to be with us for many years.

The present Text is more selective in the subjects discussed than others of recent years which, covering longer periods, contained the material necessary for a fairly comprehensive review of all causes of mortality. Future Texts, like the present one, will follow the earlier practice of covering single years. It is intended, however, to survey in these annual volumes over a series of years all the more important aspects of mortality relevant to the objectives referred to above; where figures for a single year do not provide sufficient detail, those for several years will be amalgamated.

In association with the volumes of the Annual Review covering mortality and notification statistics, the General Register Office is now producing supplements relating to the various aspects of morbidity statistics on which information is collected by the Office. Supplements for the year 1949 have been published * and similar supplements for the combined years 1950 and 1951 are being prepared. In addition, the Ministry of Pensions and National Insurance have produced a Digest of Statistics analysing certificates of incapacity in 1950 (unpublished). The presentation of all such statistics is still experimental and would not yet fit in to the regular pattern which has been evolved for mortality and notification statistics. When, however, their significance and their relationship to each other and to mortality statistics are more clearly defined, they should provide much more comprehensive information about the incidence

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* Statistical Review, 1949, Supplement on General Morbidity, Cancer and Mental Health, H.M.S.O., price 7s. 6d. net (by post 7s. 9d.).

Statistical Review, 1949, Supplement on Hospital In-patient Statistics, H.M.S.O., price 15s. (by post 15s. 6d.).

and effects of different diseases than has yet been available and this should be reflected in the value of the Registrar General's annual medical reviews.

Reference has been made in earlier Reviews to the series of Studies on Medical and Population Subjects which provide a more extensive treatment of important subjects than is normally undertaken within the limits of the Annual Review and reference is made later in this Introduction to publication of a Supplement on occupational mortality in 1950. Comment on the medical statistics collected by the Office, or otherwise available, is also made in the contribution which the Office makes to the Annual Report of the Ministry of Health and in articles by members of the staff which appear elsewhere (see Appendix D for a list of articles which appeared in 1950). Such articles probably inform a wider circle of readers of the value of some of the medical statistics which are prepared, but for full information about the statistics collected by the General Register Office reference should be made to the actual publications of the Department.

What is published in all these ways is necessarily a small selection from the great amount of statistical information which might be derived from the records collected. Additional information, if it is of sufficient importance to justify the cost, can be produced to meet specific needs, and requests for such information are frequently received from other Departments, official Committees, the Medical Research Council and other research organizations. In meeting such requests and in relation to other investigations in the field of medical statistics the General Register Office is often able to give advice on the kind of information which is likely to be most useful for the purposes in mind. The benefit of the special clerical skills acquired in the Department is also sought on occasion, as was done in coding the causes of death among amputees for the Committee on Cardio-vascular disorders and Mortality rates in Amputees. Appendix C gives a list of committees of medical interest on which officers of the Department served during 1950.

While the Department can and does help particular investigations in many ways, its main function in the field of medical statistics must be to publish the basic data and commentary which provide the jumping-off ground for much administrative action and for further research. This function, in itself, demands a continuous awareness of developments in administration and research to ensure that the information published is in a form to meet current needs. In this, as in other ways, the Registrar General's Advisory Committee on Medical Nomenclature and Statistics, on whose work up to November 1950 a report was published in the previous Review,* continues to give invaluable help. The Chairman is Sir Ernest Rock Carling, who is also a member of the Central Health Services Council. The full membership of the Committee is shown in Appendix B.

To achieve a balance between continuity of information and a demand for change, the normal practice has been to review the content and form of publication when a change of classification has been introduced. Such a review took place in 1950. Apart from changes directly consequent upon the change in classification, the main changes in presentation of tables in Part I of the 1950 Review concern the tables relating to deaths from violence (Tables 18A, B and C) and the introduction of a new table (Table 19) setting out causes of death by age in the major " conurbations " of the country (as identified in the 1951 Census tabulations), aggregates of towns of certain sizes and aggregates of rural districts.

The new features in the tables relating to deaths from violence are the classification of accidents other than transport accidents according to the place

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* Text, 1948–49, Appendix B, page 281.

of accident and the classification of all deaths from violence by the nature of the injury sustained as well as by the external agent (see also page 178 of this Text). These are both provided for by the new International Statistical Classification, but they would have failed in their object if coroners had not co-operated so fully in supplying the information needed. In anticipation of the changes, the Coroners' Society was approached in 1947 with a view to working out ways and means of obtaining the information. As a result coroners have been completing a supplementary statement since the middle of 1948 specifically to provide this information. The extent of their co-operation, as also the limited extent of their failure, is indicated by the proportion of cases where the place of accident was not specified (7 per cent) and the proportion of cases where the nature of injury was not specified (less than 3 per cent). The General Register Office and others who have used this information are indebted to coroners for their co-operation.

The general picture of mortality in 1950

The number of deaths registered in 1950 was almost the same as in 1949 and, in the absence of any notable epidemic or abnormal weather, their distribution over the four seasons of the year closely followed the normal pattern. The improvement in mortality rates at ages under 45 continued, while there was a slight increase in the rates at ages over 65; the diagram on page 17 shows how there is a tendency for the age distribution of mortality to approach the " natural " distribution which would emerge if senility were the only cause of death.

The favourable mortality experience of Greater London and the relatively unfavourable experience of the North of England and parts of Wales are well recognized characteristics of the pattern of mortality over the country; attention is drawn on page 19 to some of the many factors which no doubt have their influence on this pattern.

Mortality by occupation and social class

Figures of mortality in 1950 according to social class and certain broad groups of occupation have already been published elsewhere.* These figures are based on one year's mortality and on population figures derived from the one per cent sample tabulations from the 1951 census, and findings based on them must be regarded as provisional until confirmed by the fuller tabulations which will be undertaken on the basis of 5 years' mortality and the full census tabulations.

In the mortality of occupied and retired men, the most notable finding is that standardized mortality in social classes II and IV was lower than in social class I. The actual standardized mortality ratios (i.e. the ratios of actual numbers of deaths to the numbers which would have been expected if the national mortality rates at different ages were applied to the populations within each social class) were 97 in social class I, 86 in social class II, 102 in social class III, 94 in social class IV and 118 in social class V. Within the social classes, farmers (S.M.R. 73) showed low mortality in social class II, agricultural workers (S.M.R. 80) in social class IV and building labourers (S.M.R. 79) in social class V. High mortality was shown by mineworkers (S.M.R. 138), particularly marked for hewers and getters (coal) (S.M.R. 154) and members of the armed forces (S.M.R. 133), both groups in social class III.

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* Registrar General's Decennial Supplement, 1951, Occupational Mortality, Part I, H.M.S.O., price 7s. 6d. (by post 7s. 9d.).

The following causes of death suggested a fairly definite rising gradient from social class I to V:—

Respiratory tuberculosis
Syphilis
Cancer of stomach
Chronic rheumatic heart disease
Chronic endocarditis (not rheumatic)
Myocardial degeneration
Pneumonia
Bronchitis
Ulcer of stomach
Road vehicle accidents
Accidents in the home.

Each of these causes (other than accidents) showed a similar definite gradient in 1921–23 and in 1930–32.

The following causes showed a more or less definite gradient downward from social class I to V.

Cancer of prostate
Cancer of kidney and bladder
Leukæmia
Vascular lesions of central nervous system
Arteriosclerotic (coronary) heart disease
Hypertension without mention of heart disease
Appendicitis.

The gradients for arteriosclerotic (coronary) heart disease and appendicitis have become a little less steep than in 1930–32.

While cancer of the lung and road vehicle accidents showed some upward gradient for men from social class I to V, the gradient for married women was downwards. On the other hand, arteriosclerotic (coronary) heart disease, hypertension without mention of heart disease and appendicitis showed a downward gradient for men and an upward gradient for women.

Infant Mortality

In spite of the remarkable achievement in reducing infant mortality in the last fifty years, the risk of death during the first year of life is still greater than in any other single year under the age of 60. During 1950, for the first time, deaths in the first week of life outnumbered those in the remainder of the first year. There is a corresponding increase in the relative importance of stillbirths as a contribution to "reproductive wastage," and the close relation between the causes of stillbirth and of early neonatal mortality is emphasized by the fact that causes thought to be determined by factors operating before or at birth accounted for 94 per cent of the deaths in the first week (page 29). The trend of a rate combining stillbirths and early neonatal deaths, a combination which may be used to represent " perinatal " mortality, is shown in Table XI.

When the variations of infant mortality and stillbirths associated with season of the year, social class of parents, or area of residence are considered, it appears that the amount of variation is notably less for stillbirths and early neonatal deaths than for deaths in later infancy (page 31). Annual trends since 1948 also show similarities between stillbirths and early neonatal deaths (page 35).

Immaturity was the most prominent condition among the causes of death in the early neonatal period and was mentioned on more than half the certificates

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relating to the whole neonatal period (page 30). Regional differences in the assignment of immaturity as the underlying cause or as a contributory cause emphasize the particular need for taking certification habits into account when studying mortality due to immaturity (page 33).

Some of the biological and environmental factors which appear to influence infant mortality, e.g. the age and parity of the mother and the social class of parents are being investigated, in collaboration with the Social Medicine Research Unit of the Medical Research Council, by linking the information recorded at registration of death to the information recorded at registration of birth for infants born in 1949 and 1950. The results of this investigation may throw further light on some of the factors which influence the major problems still remaining in infant mortality. While this enquiry will study in detail the effects of social class on infant mortality some figures are given on page 31 of the present volume, and further information distinguishing also a number of broad occupation groups of the father is given in the Occupational Mortality Supplement already referred to above.

Maternal Mortality

The contribution made to the reduction in maternal mortality by measures to prevent or control sepsis is shown by the fact that in 1950 the rate of mortality with mention of sepsis was only 8 per cent of the rate in 1934. Nevertheless, 62 per cent of deaths due to abortion had sepsis mentioned in the statement of cause of death, compared with 17 per cent for all other maternal causes (page 47).

With a rate of only 0·54 per 1,000 births, the Southern region of England had reduced its maternal mortality rate by more than two-thirds since 1946. Wales with a rate of 1·55 still had a rate above any region of England, but had reduced its rate by almost a third in the same period (page 50).

The association of social class and maternal mortality is considered in the Occupational Mortality Supplement referred to above. There is evidence of a gradient with social class for all maternal causes which show a standardized rate 7 per cent below the average in Social Class I and a rate 12 per cent above the average in Social Class V. There are more definite gradients for sepsis, with crude rates 42 per cent below average in Social Class I and 18 per cent above average in Social Class V, and for abortion with rates 14 per cent above average for Social Class I and 18 per cent below average for Social Class V.

Syphilis (page 59)

Mortality in 1950 from all syphilitic diseases was less than half and that from congenital syphilis almost one tenth of what they were in 1931; but mortality from aneurysm of the aorta had not yet started to decline except in the younger ages affected.

Typhoid and Paratyphoid (page 60)

With the continued beneficial results of treatment with chloramphenicol there were only 3 deaths from typhoid and paratyphoid for every 100 cases notified. The fatality ratio appears to increase with age, but the morbidity rate is highest in childhood.

Dysentery (page 61)

Though the number of cases of dysentery notified in a year has since been higher, the 1950 figure was the highest recorded until then. Case fatality was, however, remarkably low and although there were almost as many cases notified in 1950 as in the preceding four years, the number of deaths was less than the average for those years.

Scarlet Fever and Diphtheria (page 62)

The decline in deaths from scarlet fever from 107 in 1944 to 33 in 1950 is mainly due to a reduction in case fatality, indicating either diminished virulence of the disease, increased natural resistance to it or improvement in treatment. On the other hand the decline in deaths from diphtheria in the same period from 908 to 49 was not matched by any decline in case fatality. The need to protect children from infection by diphtheria is thus no less compelling than it was in the early years of the immunization campaign.

Poliomyelitis (page 65)

1950 was the third year in the period 1947–50 with a high incidence of polio-myelitis. It is shown that over these four years as a whole some parts of the country escaped relatively lightly while others had particularly high incidence, notably the South and South Western regions. The extent of variation is presented in detail in Table LI which compares the actual experience of counties and county boroughs with what might have been expected if it had been similar to that of the whole country. No satisfactory explanation for the variations has yet become apparent.

Tuberculosis

Improved case finding has made it difficult to assess the real trend of *morbidity* from respiratory tuberculosis; however, consideration of notifications in different age groups (page 116) suggests that for young adult females under 35 morbidity in 1950 was still above the pre-war level; notifications among men at ages over 65 were very high, possibly because of increased attention to radiological investigation of the chest among older men.

The improvement in *mortality* from respiratory tuberculosis (page 117), which continued in 1950, is primarily at young and middle ages. At ages over 65 there has been a tendency for death rates to rise in both sexes, but this too may partly reflect improved diagnosis as a result of more thorough chest examination at these ages. The trends at different ages are illustrated in the diagram on page 118.

A real decline in morbidity as well as mortality from non-respiratory tuber-culosis is apparent; the remarkable response of mortality figures for tuber-culous meningitis to the introduction of streptomycin is noted (page 119).

The regional excess of mortality from respiratory tuberculosis in the North, North-West and Midlands, but not in Wales, is shown to be concentrated in the larger towns (page 120). A summary table showing towns in England and Wales with particularly high or low tuberculosis mortality is given on page 121.

Cancer

Compared with 1938, the risk of dying from cancer in 1950 was less among women and greater among men. This does not apply at all ages, however, since mortality among young women (under 35) has not declined and mortality among men aged 25–34 has not increased. Furthermore, the increase among older men started later and there are signs that the increase among men aged 35–44 has ceased (page 144).

The effect of accuracy in diagnosis on the mortality figures for cancer of different sites is discussed (page 145). Tables showing trends of mortality by

ages over several decades are given for cancer of the lung, which has recently received much public attention, and cancer of the breast; the trends of the latter differ notably between women of child-bearing ages and older women.

Diseases of the Respiratory System

Although a severe influenza epidemic had started before the end of 1950, it did not affect the mortality statistics of that year. In discussion of the accuracy of diagnosis of influenza (page 157), it is suggested that assignment of deaths to influenza is more reliable than might be imagined from the likelihood of confusion in diagnosis with bronchitis and pneumonia.

The excess of male over female mortality from influenza and pneumonia at ages over 45, as well as from respiratory tuberculosis and cancer, suggests that the male respiratory system is particularly vulnerable at those ages.

Deaths from Violence

From 1940, the death rate from violence, including suicide, declined faster than the death rate from all causes, but the rate of decline was reduced after the end of the war. Until 1946 proportions dying from violent causes were higher among men than among women in each age group, but, since 1946, this tendency has been reversed at ages over 65 (page 173).

Fatal motor traffic accidents are discussed in relation to various factors; it is shown, for example, that between ages 15 and 65 mortality was highest among those who live in rural areas, while at other ages it was higher among those who live in urban areas (page 176).

Sixty per cent of the deaths from motor vehicle accidents were due to fractured skulls, the proportion showing little difference between the sexes. For some other types of injury and other types of accident, however, there were marked differences between the sexes (page 178).

Variations in the trends of suicide with age in different parts of the country are shown on page 192. In general suicide rates increased with age except for women above the age of 65. Variations in suicide rates between different towns (page 194) are very striking, as, for example, rates of 259 per million living in Burnley and 44 in St. Helens.

Death Certification

The slight modification of the medical certificate of cause of death to bring it into accord with the World Health Organization Nomenclature Regulations of 1948 has already been referred to. Most other countries required more substantial changes in the form of their certificates and, to assist them in the use of the new certificate, a study was made by the W.H.O. Centre on Classification Problems (set up in 1951 in association with the General Register Office) on the basis of 1950 death certificates for England and Wales. This Review contains a report by that Centre on the use made of the facilities provided by the certificate for naming more than one cause of death and for entering information about the interval between onset of disease and death. A further report * by the Centre on the use of enquiries sent to certifying practitioners to amplify statements of causes of death includes a table showing the effects of 12,391 replies to enquiries sent out in England and Wales in 1950, resulting in 9,342 improvements in classification.

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* Amplification of Medical Certification of Cause of Death. Bulletin of the World Health Organisation, Supplement 5 (1953).

International Health Statistics

Apart from the steps taken to implement recommendations passed by the World Health Assembly in earlier years (page 211), work in the international sphere was concerned with improving international health statistics in other ways. Thus the Third World Health Assembly in 1950 was preceded by meetings of three Sub-committees of the Expert Committee on Health Statistics and a meeting of the Expert Committee itself. Among the immediate fruits of these meetings were approval of international definitions of live birth and fœtal death and of cancer; among later fruits was the establishment at Somerset House in 1951 of the W.H.O. Centre for problems arising in the use of the International Classification, already referred to. Work in association with other international bodies, including the Brussels Treaty Organization, is also summarized (page 212).

GENERAL MORTALITY

Numbers of Deaths

In 1950 there was a total of 510,301 deaths registered in England and Wales, 261,152 being of males and 249,149 of females. These numbers differ but little from those recorded in 1949 (260,686 males and 250,050 females).

It should be borne in mind that non-civilian deaths are included in all tables as from 1st January, 1950.

Death Rates

Crude Death Rates represent the total numbers of deaths from all causes registered during the year as belonging to the area in question, after correction for transfers to the place of residence of the deceased, per thousand or per million of the corresponding estimated resident population at the middle of the year. Use of the mid-year population involves the assumption, tenable at the present time, that the population resident in the area was either stationary or changing at a uniform rate throughout the year.

Civilian Death Rates are used between 1939 and 1949 for all purposes of local statistics and for many national tables and represent the numbers of deaths registered during the year as belonging to the area in question, with deduction of those of non-civilians in each year, and corrected for transfers to place of residence, per thousand or per million of the corresponding estimated civilian population for the year. (Non-civilians are included in most of the tables in this Text.)

Specific Death Rates relate either to mortality assigned to selected causes, or else to mortality amongst groups of persons of selected sex, age or civil condition. Rates of the latter type are, with certain exceptions, usually obtained by dividing the number of deaths registered in the year as being those of persons in the selected group by the estimated number of such persons alive at the mid-year. Exceptions to the use of estimated populations as denominators are the various rates of infant mortality, which are based on the appropriate numbers of live births, and certain death rates connected with child-bearing which are based upon the appropriate numbers of live and still births.

Standardized Mortality Comparisons

Comparative Mortality Index.—This index has replaced the standardized death rate which was used until 1939 for the purposes of measuring the trend of mortality from all causes, or from a particular cause, over a period of time. The methods of calculation and a discussion of its advantages over the standardized death rate may be found on pages 6–11 of the Review for 1940–45. Briefly, it represents the ratio between adjusted death rates of the year in question and of a base year (at present the year 1938), each calculated by weighting the death rates at the various sex-age groups by the mean of the corresponding proportions of the population living in the two years. If the death rate experienced by an age group in the year to which the index relates is denoted by m, and the

corresponding rate in 1938 by m', and if r and r' are the fractions of the populations of all ages falling within that age group then

$$C.M.I. = \Sigma m (r + r')/\Sigma m' (r + r')$$

where Σ denotes summation over all the age groups.

The C.M.I's. for all causes of death are shown in Table 3 (Part I) for all persons and each sex separately from 1841 to 1950. For separate causes of death, C.M.I's. are given in Table 9 for each sex in each of the last eleven years; and for certain important causes Table 6 gives the indices for years or periods of years extending as far back as the records allow. In these tables, the Index for the year 1938 is taken as unity.

The adjusted ratios of male to female mortality also shown in Table 3 (Part I) are derived by the same formula as the C.M.I's., but interpreting m' and r' as referring to females and m and r as referring to males, each in the year to which the ratio applies.

The mortality ratios for each year or period of years, shown in Table 4 (Part I), are the ratios between the C.M.I. of the period specified and that of the period immediately preceding it. Thus the cumulative product of the mortality ratios proceeding forwards from 1938 taken as unity produces the successive C.M.I's. of the years 1939 to 1949; and the cumulative product of the reciprocals of the mortality ratios proceeding backwards from 1938 taken as unity likewise produces the successive C.M.I's. for years prior to 1938.

The equivalent average death rate is the arithmetic mean of the rates at quinquennial groups of ages up to some convenient limit such as 65, this being equivalent to calculating a standardized death rate at ages under 65 based upon a population uniformly distributed over the 13 age groups.

The General Trend of Mortality

Table I (page 21) shows for each sex, (a) the crude death rate for all ages, and (b) the comparative mortality index for all ages. The C.M.I's. for periods covering 1914–18 and 1939–49 are based on civilian deaths and populations only.

The trends are illustrated in Diagram 1.

The crude death rate fell by approximately the same percentage for each sex from 1861 to 1921. Since 1921, however, there has been little further decline in the rate and, although 1948 registered the lowest mortality on record, the crude death rates for each sex were still only 11 per cent below the rates for 1921; and in 1950 the rates were only 5 per cent for males, and 4 per cent for females, below the 1921 rates. A part of this retardation in the fall in the crude death rate arises from the fact that this rate is an average in the derivation of which the growing proportion of old people in the population with their high mortality rates exercises an increasing influence.

What has been happening to the age structure of the population can be seen from Table II (page 21) and Diagram 2. Using as a yardstick a hypothetical stable population generated by a constant annual number of births with the sex ratio of 1900–02, subject to constant mortality in accordance with the life table of 1901–10 and entirely free from migration, we see from Diagram 2 that the very high birth rates of the latter part of the 19th century had altered the shape of the age pyramid, widening it at younger ages and narrowing it at older ages—the age structure had become unduly young. Thus the proportions in each age group at the 1901 census exceeded the life table proportions at younger ages and were deficient at older ages by substantial margins. This,

Diagram 1

Crude Death Rate

Males

Females

Comparative Mortality Index
(1938)

Males

Females
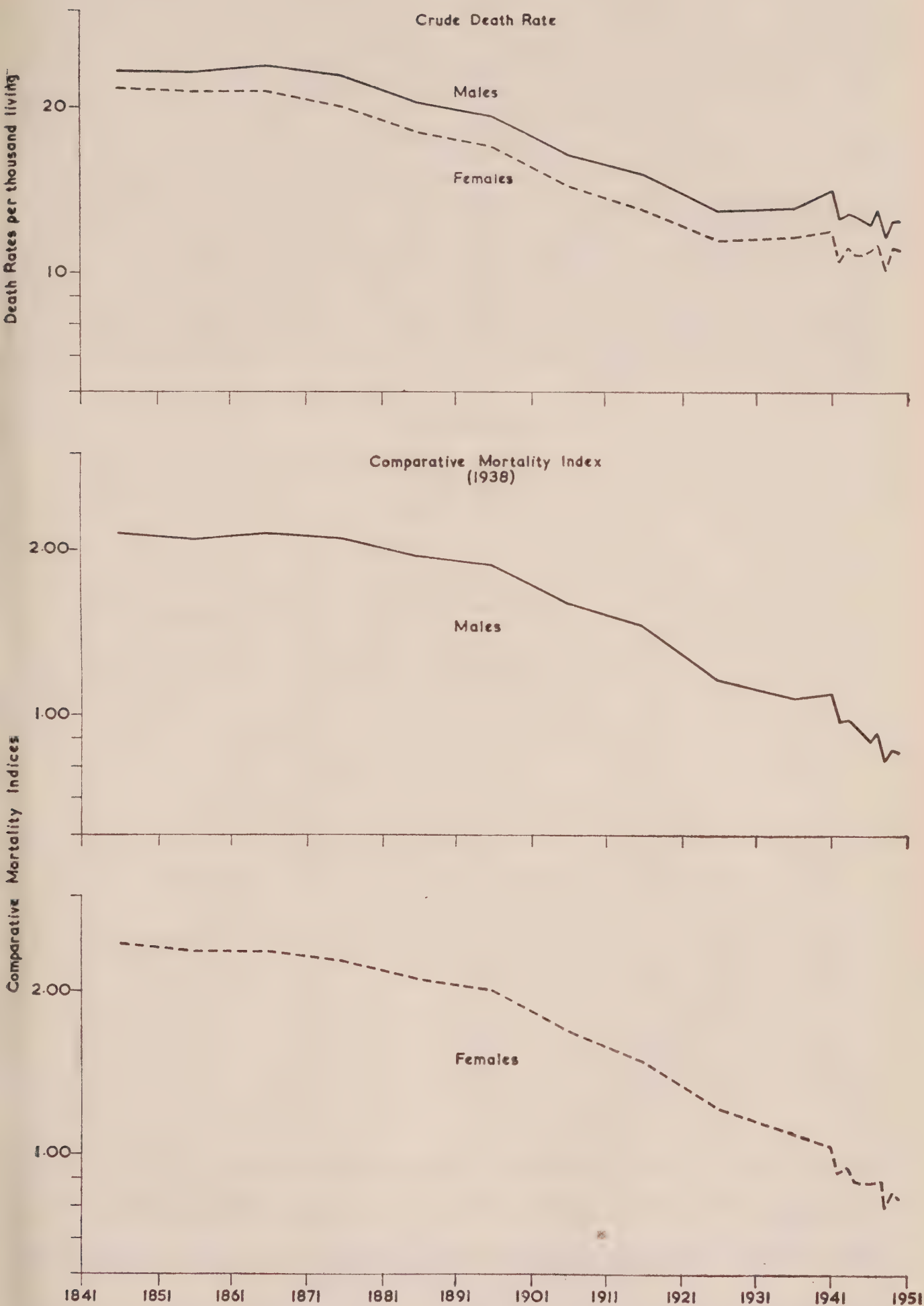
England and Wales.   Crude death rates per 1,000 living and Comparative Mortality Indices,
1841–1940 and 1941 to 1950.

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apart from improvement in the health of the people, helped to reduce the crude death rate by giving greater weight to the low mortality of the younger ages. As, towards the end of the 19th century, the birth rate declined and continued to decline up to the 1939–45 war so the population began to lose its abnormally youthful age structure and gradually reverted to an age distribution more closely resembling that of a stable life table population. In a sense the "ageing" population is one which has "grown up". The process is not complete and the high fertility of earlier decades represents a bulge in the age pyramid which is moving up to the top of the figure. The proportion of children under 15 years of age declined from 32·4 per cent in 1901 to 21·1 per cent in 1939 but rose a little to 22·5 per cent at the 1951 census. This rise is due to the increased number of births that occurred after the war. The proportion of people aged 65 and over has been increasing over the whole period from 4·7 per cent in 1901 to 9·0 per cent in 1939 and 10·9 per cent in 1951. As these changes take place there must be a tendency for the crude death rate (all ages) to be influenced by the greater representation of the older age groups and it is expected that as a position of stability is approached the death rate will rise again and deaths and births will tend to balance.

Diagram 2

Proportions at { 1901–10 Life Table
1901 Census
1951 Census
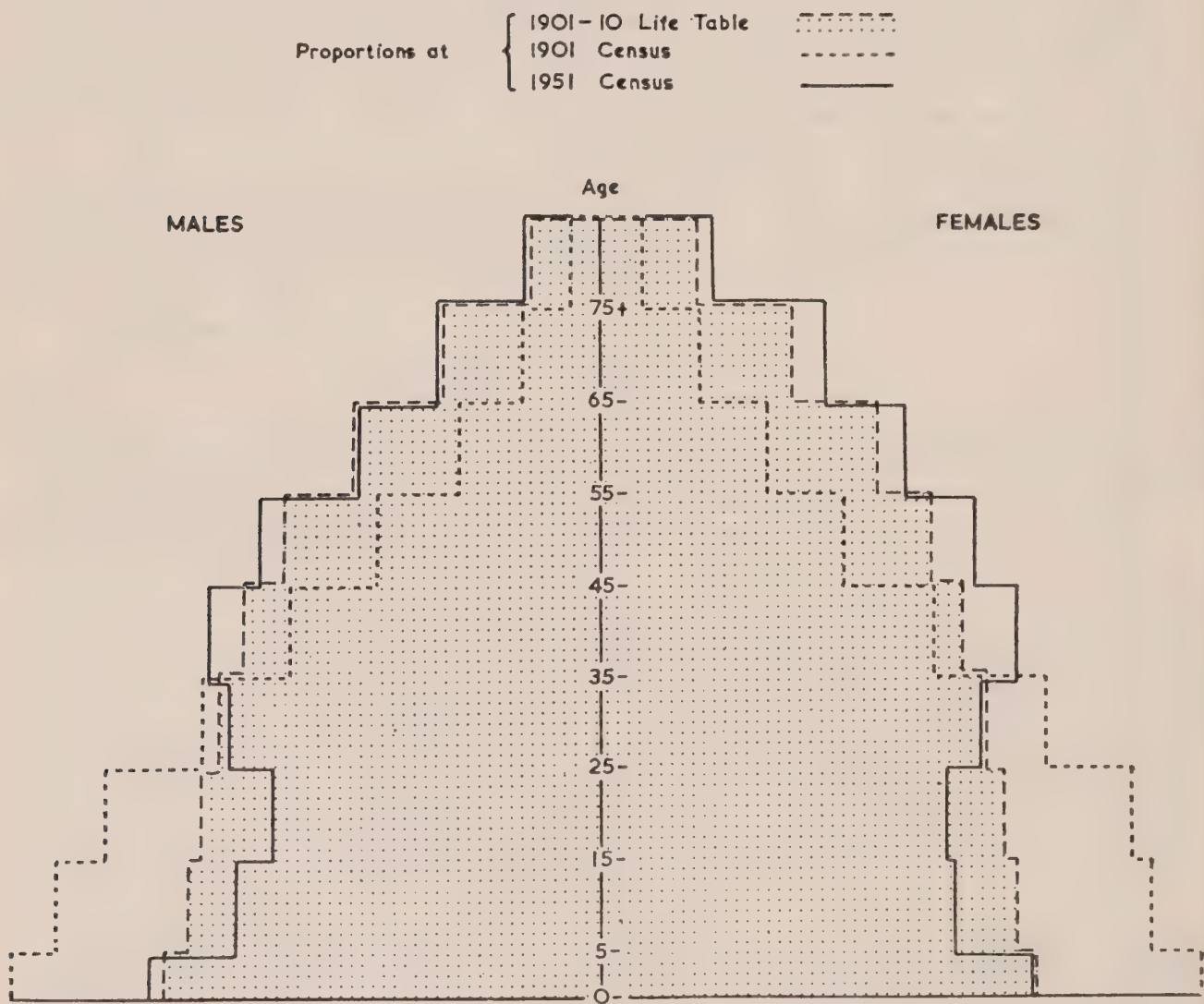
The size (area) of the block for each age group represents the proportion of the total population in that age group.

England and Wales. Sex and age distribution of the population according to the 1901–10 Life Table, 1901 Census, and 1951 Census.

The C.M.I. eliminates the greater part of the alteration in the age structure of the population and indicates the trend of mortality free of such influences.

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For both sexes taken together the C.M.I. has fallen since 1921 by 32 per cent compared with a fall of only 4 per cent in the crude death rate. The persistent and continuing decline in mortality, at an even accelerated pace in the last decade or so is a striking feature of the national vital statistics, but we shall see later that this decline mainly affects younger ages; the C.M.I., though age adjusted, is still dominated by the improvement which is restricted to younger ages.

Expectation of Life

The Expectation of Life is the average number of years of life that will be lived by a group of people of given age subjected to a given mortality experience, usually the mortality experience of a selected year or period of years, if that experience is reproduced in the future. The basis of the calculation of Expectation of Life, is the Life Table. Although no English Life Table has been published since 1931, abridged Life Tables for 1946 and 1947 were published in the Review for those years (Appendix B, page 312), and similar tables for 1948 and 1949 were given in the Review 1948–49 (Text, page 11). The following table, relating to 1950, continues the series.

Age x	Males		Females	
	l_x	$\overset{o}{e}_x$	l_x	$\overset{o}{e}_x$
0	10,000	66·51	10,000	71·25
1	9,666	67·80	9,743	72·12
2	9,644	66·96	9,721	71·28
3	9,630	66·05	9,709	70·37
4	9,620	65·12	9,701	69·43
5	9,611	64·18	9,693	68·48
10	9,576	59·41	9,668	63·65
15	9,549	54·57	9,648	58·78
20	9,500	49·84	9,611	54·00
25	9,435	45·16	9,558	49·28
30	9,358	40·51	9,493	44·60
35	9,276	35·85	9,420	39·93
40	9,169	31·24	9,327	35·30
45	9,009	26·75	9,204	30·74
50	8,725	22·54	9,008	26·36
55	8,280	18·62	8,725	22·13
60	7,588	15·09	8,310	18·11
65	6,585	12·00	7,678	14·39
70	5,299	9·31	6,732	11·07
75	3,787	7·03	5,360	8·26
80	2,216	5·24	3,586	6·11
85	940	3·95	1,831	4·56

This abridged life table is constructed from the estimated home population in 1950 and the deaths in that year including those of non-civilians registered in England and Wales.

The column headed l_x shows the numbers who would survive to exact age x out of 10,000 born who were subject throughout their lives to the death probabilities indicated by the 1950 death records. Column $\overset{o}{e}_x$ is the "expectation of life," that is the average future lifetime which would be lived by persons aged exactly x, if likewise subject to these death probabilities.

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The Expectation of Life at birth and at age 1, as given in each of the English Life Tables Nos. 1 to 10 and in abridged life tables calculated for each year 1940 to 1949, were shown in Table IV of the Review (Text, page 12) for 1948–49. For 1950 the values are unchanged.

Quarterly Deaths and Death Rates

Numbers of deaths registered in England and Wales (including non-civilians) and death rates (excluding non-civilians from September, 1939 until 1949) in each quarter are given in Table 5 (Part I) by decennial periods from 1841 and by single years from 1940.

There were no unusual epidemic incidents of a national character nor any serious weather disturbances in 1950 and the distribution of mortality over the year was normal, the ratios of the quarterly death rates to the annual rate (taken as 100) being (from March quarter to December quarter) 121, 96, 80, 106.

Death Rates by Sex and Age

Table III (page 22) gives death rates for each sex at separate ages from 0–4 to 85 and over by decennial periods from 1841, quinquennial periods from 1901, and by single years from 1941.

The trends of these rates have been illustrated in Diagram 3.

The improvement in mortality has been greater at the younger ages where in the past the principal causes of death have been infections and injuries which have naturally yielded more to preventive measures, of all kinds, than have the degenerative causes of mortality which predominate at old ages. Expressing the rates for 1950 as a percentage of the corresponding rates for 1841–50, the following figures are obtained.

Death Rates in 1950 per cent of those of 1841–50

	All ages	0—	5—	15—	25—	45—	65—	85 and over
Males ..	53	10	9	15	21	60	81	80
Females ..	51	10	6	11	16	41	65	74

At ages below 45, the mortality experienced in 1950 represented a considerable improvement upon any previous year, and it is the improvement in this age group which is reflected in the fall in the C.M.I. already referred to. At ages 45–64 however the death rate for neither sex was appreciably below the average levels of 1948–49 and at ages over 65 not only has there been no further decline but for men, more perhaps than for women, an upward trend is discernible.

In Diagram 4 (page 17) the rates have been arranged, with some inevitable degree of approximation, on a generation basis, i.e. each curve represents the average age trend of mortality of a group of lives born in a period of years immediately surrounding the calendar year indicated against each curve. Again there is the impression of the main reductions occurring at young and

Diagram 3

Under 25 years
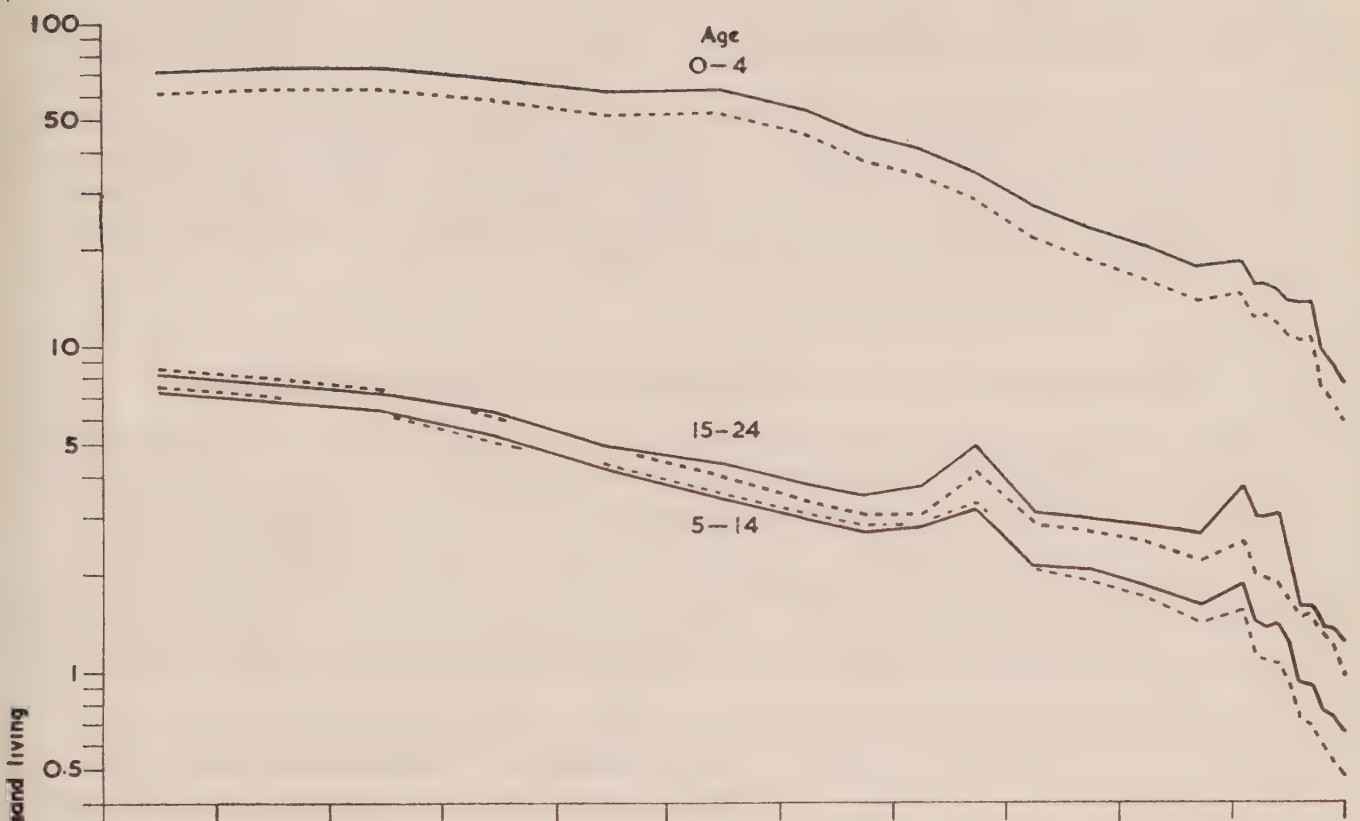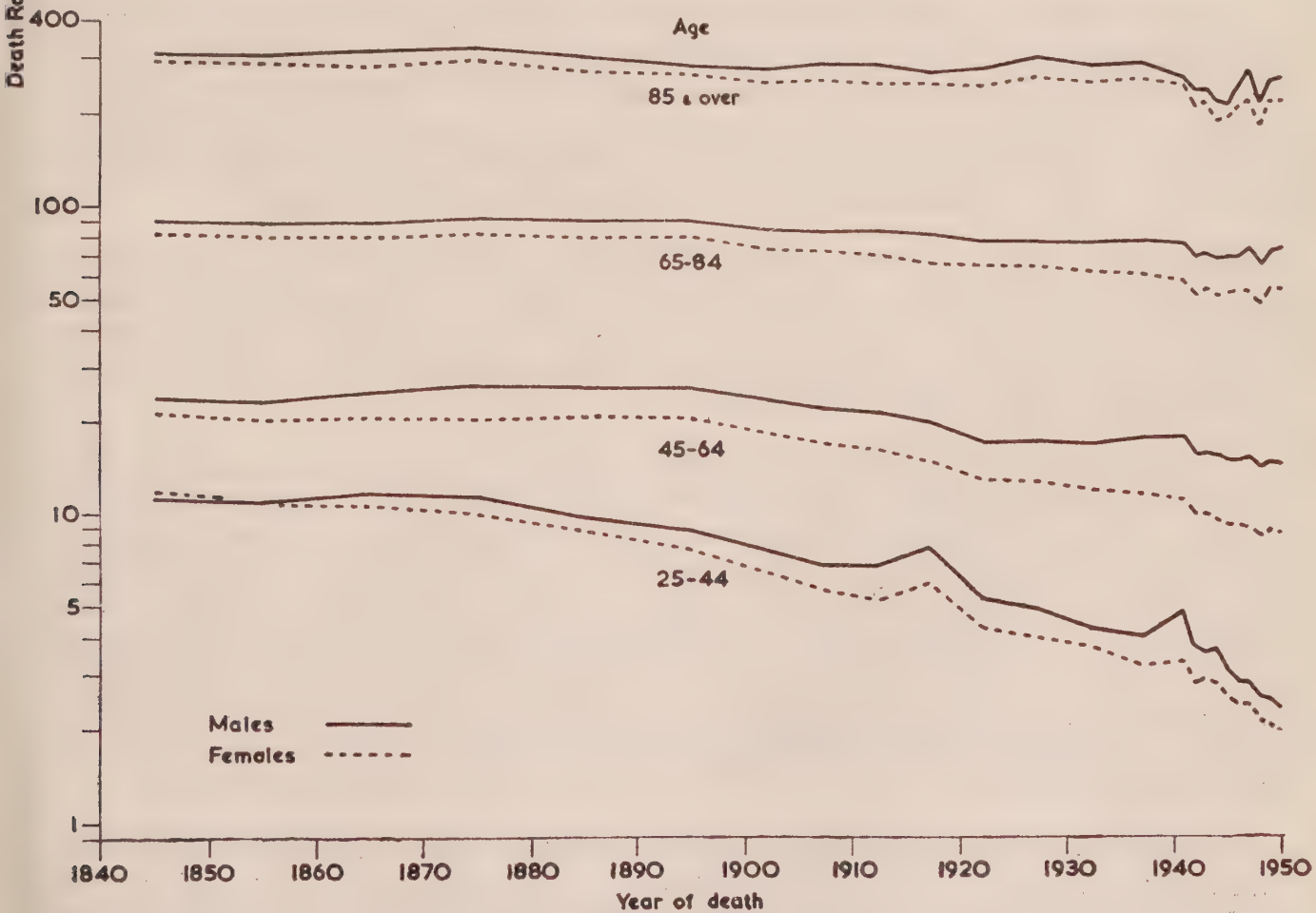
England and Wales. Death rates per thousand living from all causes, by sex and age, 1841–1940 and 1941 to 1950.

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middle ages—a flattening of the commencement of the curve and a hollowing out of the middle with successive generations (generations 40 years apart are shown only, for clarity in the diagram). There is a gradual approach to the j-shaped curve which represents the ideal "natural" curve of mortality—the mortality gradient that would emerge if senility were the only cause of death.

An important feature of the mortality statistics has been the greater advance in the longevity of women, relative to that of men. The more rapid decline in the mortality rates for women is especially remarkable at adolescence and very early adult life (e.g. 15–24), where the rate for women was once higher and is now lower than that for men, and at ages over 45.

Comparative Mortality in Different Parts of England and Wales

Table 12 (Part I) gives home populations, births, deaths, infant and neonatal deaths and stillbirths in standard regions, urban and rural aggregates and individual local areas. The urban aggregates have been revised in 1950 to provide an improved population density gradient. The groupings used will be more meaningful than a mere aggregation of county boroughs or urban districts but this change inevitably implies a break in the continuity of all series on an aggregate basis because earlier figures on the revised aggregates cannot be given.

Comparability factors are provided to make allowance for local differences in the sex and age composition of the population. When multiplied by the comparability factor, local rates can be compared with one another and with the rate for the country as a whole. To facilitate such comparisons Table 12 also gives, for each region and local area, the ratio of its adjusted death rate to the national rate in the same year.

The use of comparability factors for the standardization of local death rates was introduced in 1934. A description of methods of standardization for area comparisons used previously is given in the Review for that year (Text, page 4), together with an account of the new method and the reasons for its introduction. The actual populations used as a basis for the factors for 1950 were those estimated at 31st December, 1947, from National Registration data.

The comparability factors shown in Table 12 were calculated on the basis of deaths from all causes and should only be used for the adjustment of death rates relating to all causes. For area comparisons of mortality from particular causes a special series of comparability factors would have to be calculated based on mortality from these causes.

Comparison of the *adjusted* death rates of local areas with one another and with the national rate is valid only within the same year. If it is desired to make a standardized comparison between different years the local adjusted death rate, or preferably the ratio of the adjusted death rate to the national rate, requires further correction. Prior to the introduction in 1942 of the comparative mortality index for the standardization of serial national death rates a "time comparability factor" was used for comparisons covering more than one year, this factor being the ratio of the standardized to the crude national death rate for the year in question, the standardization being based on the 1901 population.

Standardized time comparisons of the ratios of local adjusted rates to the national rate can now be made, however, by multiplying these ratios by the C.M.I. for that year. It is necessary to make the assumption that changes in the sex and age composition of the local populations from year to year were proportionately the same as those in the national population.

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Diagram 4
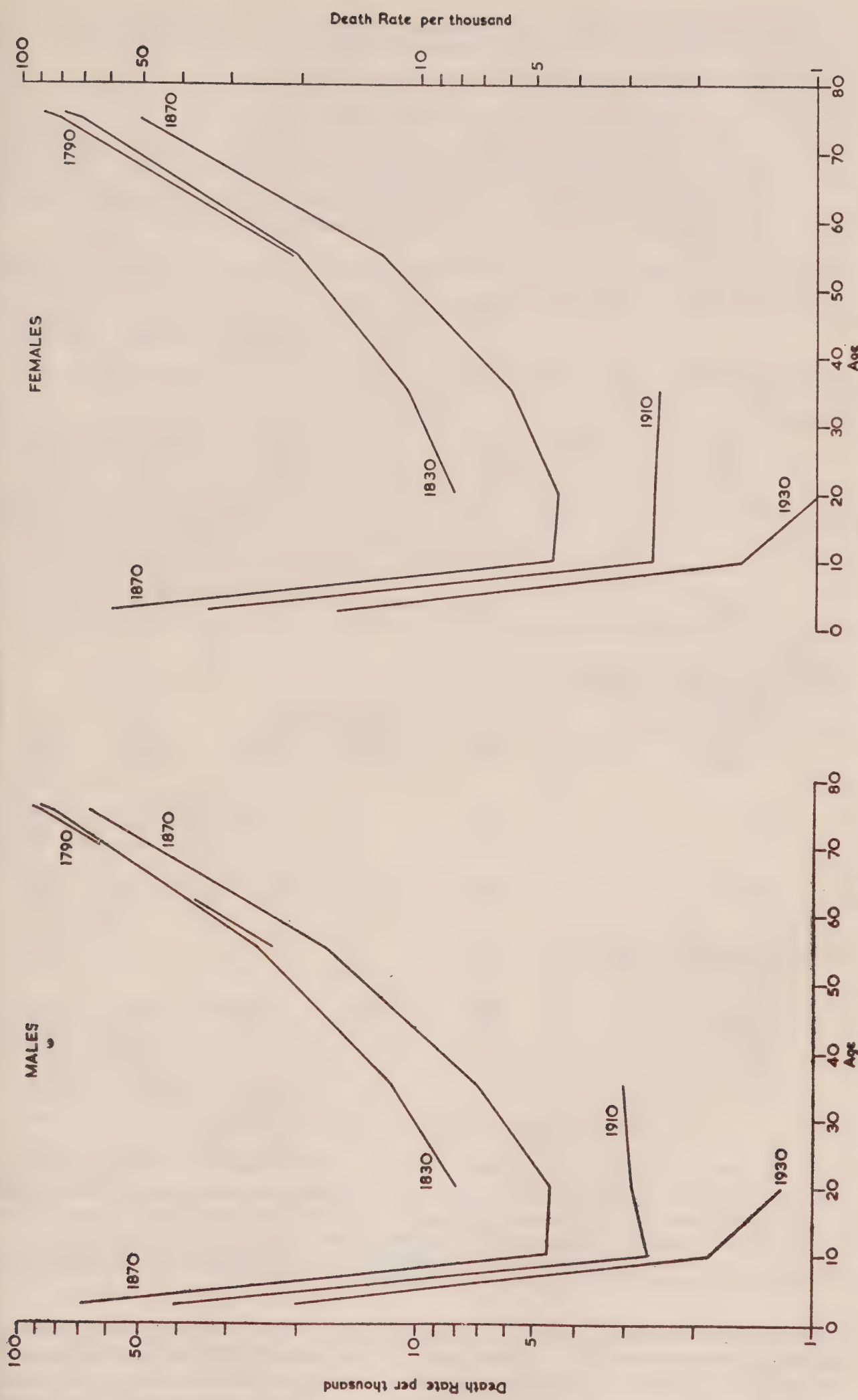
England and Wales. Death rates per 1,000 living, by sex and age, for generations born in 1790, 1830, 1870, 1910 and 1930.

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The following table gives for England and Wales, Greater London and the density aggregates in 1934, 1938, 1948 and 1950:—

(a) crude death rates per 1,000 living;
(b) ratios of local adjusted to national rate;
(c) those ratios multiplied by C.M.I's. to combine the area comparisons with comparisons of the overall trends of mortality (after correction for population changes). The final ratios express the local adjusted mortality in relation to the national mortality in 1938.

	England and Wales	Greater London	County Boroughs	Urban Districts	Rural Districts
(a) Crude					
1934..	11·8	11·0	12·3	11·8	11·8
1938..	11·6	10·2	12·3	11·8	11·7
1948..	11·0	9·9	11·5	11·3	10·6

	England and Wales	Greater London	Urban Areas* 1	2	3	4	Rural Areas
1950..	11·6	10·4	12·2	11·8	12·3	12·3	11·3

	England and Wales	Greater London	County Boroughs	Urban Districts	Rural Districts
(b) Ratios of " local " adjusted to national rates in the same year.					
1934..	1·00	0·97	1·10	0·99	0·90
1938..	1·00	0·91	1·12	1·01	0·90
1948..	1·00	0·94	1·10	1·01	0·90

	England and Wales	Greater London	Urban Areas* 1	2	3	4	Rural Areas
1950..	1·00	0·92	1·13	1·05	1·02	1·01	0·92

	England and Wales	Greater London	County Boroughs	Urban Districts	Rural Districts
(c) Ratios adjusted to national mortality trend (1938 as base)					
1934..	1·07	1·04	1·18	1·06	0·96
1938..	1·00	0·91	1·12	1·01	0·90
1948..	0·80	0·75	0·88	0·81	0·72

	England and Wales	Greater London	Urban Areas* 1	2	3	4	Rural Areas
1950..	0·84	0·77	0·95	0·88	0·86	0·85	0·77

* 1. Conurbations outside Greater London;
2. Urban areas with populations of 100,000 and over; ⎫
3. Urban areas with populations of 50,000–100,000; ⎬ outside conurbations.
4. Urban areas with populations of under 50,000; ⎭

It will be seen that Greater London does not fit into the mortality gradient normally associated with urbanization. The adjusted rate for Greater London is not higher than that for rural areas. It may be that the more advanced medical services available in Greater London and the more open nature of the Outer Ring are mitigating features.

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Table IV (page 23) gives mortality rates in 1950 by sex and age in the groups of regions and density aggregates. Age for age, for both sexes, mortality in the North and in Wales is higher than in the East or the South of England; with minor exceptions of no significance this is also true for each of the density aggregates. The geographical mortality differential is therefore not due to simple differences in age constitution or urbanization but must arise from differences in industrial or social environment (including diet) or climate or genetic influences. The Northern excess in mortality is greater at very young than at older ages and it appears that, as was noted in the Review for 1932 (Text, page 35), the excess is to some extent associated with greater crowding of the population (in terms of housing density, e.g. persons per room) and possibly the diminished sunlight and greater atmospheric pollution of the industrial North.

The following figures from the 1951 Census one per cent Sample Tables do indicate that housing density is on the whole higher in the North and Wales than in other areas except the Midland Region (which did in fact experience higher mortality than the North Midland or East Regions).

Crowding and climate or atmosphere are probably not the only factors of importance, for as the following statement also shows, there are variations in socio-economic conditions as measured by the proportion of the male population in social classes IV and V (unskilled occupations); the percentages are higher in the areas of higher mortality.

Region	Persons per room			Per cent of males 15 and over (occupied and retired) in Social Classes IV, V
	Urban areas of 50,000 or more population	Other urban areas	Rural areas	
Northern	0·85	0·85	0·78	33·9
East and West Ridings ..	0·74	0·75	0·74	31·6
North Western	0·74	0·72	0·71	31·0
Wales	0·74	0·70	0·72	34·2
North Midland	0·71	0·70	0·70	30·9
Midland	0·79	0·72	0·74	28·9
Eastern	0·70	0·69	0·67	29·1
London and South Eastern	0·68	0·66	0·65	24·6
Southern	0·71	0·67	0·70	26·1
South Western	0·73	0·65	0·68	27·6

Principal Causes of Death at Different Ages

Table V (page 24) shows the death rates for the leading causes of death in each age group for each sex, in 1848–72, 1901–10 and 1950. In infants immaturity, pneumonia, and other postnatal conditions now shown as birth injury or congenital malformation but formerly included under atrophy and debility or convulsions, still predominate; diarrhœa, once a severe scourge, is however no longer among the first five causes.

Between the ages of 1 and 14 the causes mentioned in the table are numerically paramount but in fact take a relatively small toll. Accidents and injuries now predominate, especially in boys, and scarlet fever, measles, and diphtheria have ceased to be important causes of death (in 1848–72 typhus was not distinguished from typhoid). Of infections appearing as principal causes of death only

tuberculosis and pneumonia remain as reminders of preventive work not yet completed; but mention must be made here of poliomyelitis which though not appearing in the table caused 269 deaths in this age group in 1950, 152 of boys and 117 of girls. So much have other diseases retreated that cancer, not normally considered a serious risk to children, is now left in the field as a principal cause of death. A more detailed discussion of the changing pattern of child mortality was given in the Review for 1948–49 (Text, page 52).

At ages 15–44 the most dramatic feature has been the decline in the mortality from tuberculosis which, for a hundred years or more overwhelmingly the chief destroyer of young adult life, now takes second place to accidents and injuries in the principal causes for men; and in women is challenged for the lead by cancer. At the younger adult ages heart disease and cancer begin to dominate the scene. Maternal mortality has declined to a very low level but so have other causes of death in young women and diseases of pregnancy and childbirth still find mention in the list.

At ages 45–64, tuberculosis mortality has declined even further, relative to that of other causes, than in the preceding age group; cancer and the degenerative causes, heart disease and bronchitis, have undisputed predominance. It will be seen that the patterns are distinctly different for the two sexes. There is a much higher death rate from heart disease in men, and only in men do bronchitis or tuberculosis appear in the list of principal causes of death.

In the oldest age group, naturally, the diseases of " old age " have always been the leading causes of death, though death certification has progressively become more specific. Fewer deaths therefore are now attributed simply to " old age," and an increasing proportion of the certificates have mention of one or other of the degenerative processes of ageing.

Table I.—Crude death rates per 1,000 living and Comparative Mortality Indices, 1841–1940 and 1941 to 1950

Period	Crude death rate per 1,000 living		Comparative Mortality Index* (1938 base)	
	M	F	M	F
1841–50	23·1	21·6	2·12	2·44
1851–60	23·1	21·4	2·09	2·37
1861–70	23·7	21·4	2·14	2·37
1871–80	22·7	20·1	2·09	2·27
1881–90	20·3	18·1	1·93	2·10
1891–1900	19·3	17·1	1·87	2·01
1901–10	16·4	14·4	1·60	1·69
1911–20	15·1	13·0	1·45	1·49
1921–30	12·9	11·4	1·16	1·22
1931–40	13·0	11·5	1·07	1·10
1941	14·0	11·8	1·10	1·04
1942	12·5	10·5	0·97	0·92
1943	12·7	11·1	0·98	0·94
1944	12·6	10·7	0·95	0·89
1945	12·3	10·7	0·92	0·88
1946	12·2	10·9	0·89	0·88
1947	12·9	11·2	0·92	0·89
1948	11·5	10·1	0·82	0·79
1949	12·3	11·1	0·86	0·85
1950	12·3	11·0	0·85	0·83

* Based upon civilian mortality only during the periods 1914–18 and 1939–49.

Table II.—Population of persons in England and Wales by ages, per 10,000 at all ages, 1901, 1911, 1921, 1931, 1939 and 1951

Age (l.b.d.)	1901 Census	1911 Census	1921 Census	1931 Census	1939 Mid-year	1951 Census*
0—	1,143	1,069	877	749	690	858
5—	2,099	1,995	1,895	1,635	1,415	1,392
15—	1,958	1,805	1,756	1,734	1,592	1,296
25—	1,616	1,651	1,520	1,605	1,671	1,442
35—	1,228	1,344	1,411	1,368	1,465	1,527
45—	892	978	1,167	1,235	1,244	1,362
55—	597	637	769	932	1,026	1,037
65—	331	377	434	536	643	737
75—	121	126	151	182	225	306
85 and over ..	15	18	20	24	29	43
All ages	10,000	10,000	10,000	10,000	10,000	10,000

* One per cent sample.

Table III.—Death rates per 1,000 living by sex and age, 1841–1940 and 1941 to 1950

	Males								Females							
	All ages	0—	5—	15—	25—	45—	65—	85 and over	All ages	0—	5—	15—	25—	45—	65—	85 and over
1841–50	23·1	71·3	7·24	8·23	11·2	23·6	89·6	312·3	21·6	61·2	7·27	8·50	11·6	21·1	82·4	293·2
1851–60	23·1	72·7	6·79	7·71	10·9	23·2	86·8	308·3	21·4	63·0	6·84	7·98	10·9	20·1	80·0	289·0
1861–70	23·7	7·5	6·43	7·26	11·5	24·8	87·7	315·0	21·4	63·7	6·25	7·30	10·7	20·6	79·8	285·0
1871–80	22·7	68·4	5·29	6·24	11·3	26·1	90·2	327·4	20·1	58·3	5·05	6·12	9·92	21·0	80·9	296·4
1881–90	20·3	61·6	4·20	4·97	9·79	25·5	89·4	306·0	18·1	51·9	4·23	4·97	8·76	20·6	78·9	271·0
1891–1900	19·3	62·7	3·40	4·38	8·82	25·2	89·4	286·7	17·1	52·8	3·49	4·06	7·58	20·3	79·5	261·3
1901–05	17·1	54·7	2·93	3·77	7·59	23·0	83·4	274·6	15·0	45·8	3·03	3·34	6·34	18·1	72·5	249·4
1906–10	15·6	45·4	2·67	3·45	6·76	21·7	82·0	283·0	13·8	38·0	2·78	3·05	5·60	16·9	70·8	250·9
1911–15	15·5	40·9	2·75	3·69	6·76	21·0	81·7	281·6	13·3	34·0	2·75	3·00	5·17	16·0	69·5	245·4
1916–20	14·9	34·4	3·11	4·85	7·61	19·5	81·1	267·8	12·8	28·4	3·18	4·06	5·91	14·4	65·9	241·9
1921–25	12·9	27·0	2·10	3·06	5·24	16·9	76·2	272·7	11·4	21·8	2·05	2·83	4·26	12·8	64·0	241·2
1926–30	12·9	23·1	2·06	2·93	4·84	17·0	76·3	298·1	11·4	18·5	1·90	2·67	3·97	12·4	62·5	254·4
1931–35	12·7	20·1	1·84	2·81	4·23	16·6	75·1	278·9	11·4	16·0	1·71	2·51	3·67	11·9	61·0	245·0
1936–40	13·3	17·5	1·60	2·64	3·95	17·3	76·2	286·9	11·6	13·7	1·40	2·17	3·22	11·5	60·1	253·0
1941	14·0	18·2	1·86	3·69	4·75	17·4	74·0	258·8	11·8	14·5	1·54	2·50	3·28	10·9	57·0	241·7
1942	12·5	15·6	1·42	2·99	3·72	15·3	67·9	232·9	10·5	12·3	1·11	1·99	2·79	9·79	51·2	209·2
1943	12·7	15·6	1·35	2·99	3·52	15·6	68·9	234·1	11·1	12·4	1·08	1·91	2·86	9·86	53·6	213·5
1944	12·6	14·8	1·38	3·02	3·57	15·3	67·1	212·0	10·7	11·7	1·04	1·86	2·76	9·48	50·6	188·8
1945	12·3	13·7	1·19	2·22	3·04	14·8	67·2	208·2	10·7	10·8	0·90	1·65	2·51	9·27	51·0	191·1
1946	12·2	13·5	0·92	1·58	2·83	14·8	67·6	236·4	10·9	10·4	0·71	1·46	2·39	9·20	51·8	209·6
1947	12·9	13·5	0·91	1·58	2·80	15·0	71·9	266·5	11·2	10·6	0·68	1·51	2·35	9·04	53·4	219·8
1948	11·5	9·72	0·76	1·36	2·52	14·0	65·2	210·2	10·1	7·64	0·59	1·34	2·12	8·43	47·9	183·5
1949	12·3	8·66	0·72	1·33	2·44	14·4	71·9	249·0	11·1	6·71	0·53	1·20	2·08	8·73	53·8	217·5
1950	12·3	7·48	0·66	1·21	2·32	14·2	72·8	250·4	11·0	5·85	0·47	0·95	1·90	8·58	53·6	216·9

Table IV.—All Causes : Death rates per 1,000 living by sex and age in Regions and density aggregates, 1950

	Males						Females					
	0–	5–	15–	45–	65 & over	All ages	0–	5–	15–	45–	65 & over	All ages
ENGLAND AND WALES ..	7·48	0·66	1·99	14·2	78·9	12·3	5·85	0·47	1·61	8·58	62·1	11·0
Conurbations	7·23	0·65	2·01	15·2	81·0	12·1	5·60	0·45	1·62	8·58	61·8	10·5
Areas outside conurbations :												
Urban areas with populations of 100,000 and over	7·58	0·62	2·00	15·5	82·4	12·7	6·12	0·47	1·64	8·76	62·6	11·0
Urban areas with populations of 50,000 and under 100,000	8·15	0·72	2·08	14·7	80·5	12·9	6·28	0·52	1·68	8·60	62·6	11·7
Urban areas with populations under 50,000 ..	7·60	0·67	2·00	13·9	79·3	12·9	6·12	0·44	1·65	8·85	63·5	11·7
Rural areas	7·54	0·66	1·89	11·6	72·6	11·6	5·70	0·54	1·48	8·10	60·4	10·9
NORTH												
Regions :												
Northern	9·72	0·84	2·43	15·9	83·7	13·2	7·92	0·53	1·99	9·80	69·2	11·5
East and West Ridings ..	8·30	0·71	2·02	14·8	82·7	12·8	6·38	0·45	1·58	9·13	65·6	11·3
North Western	8·86	0·68	2·23	16·6	84·7	13·6	7·15	0·51	1·88	9·56	66·5	11·9
Total	8·90	0·73	2·22	15·9	83·9	13·3	7·10	0·50	1·81	9·48	66·8	11·6
Conurbations :												
Tyneside	8·80	1·00	2·47	17·9	89·5	14·1	7·92	0·60	2·20	10·3	71·5	11·7
West Yorkshire	8·04	0·72	1·98	15·9	86·1	13·8	6·46	0·53	1·66	9·71	68·3	12·6
S.E. Lancashire	8·70	0·78	2·27	17·4	86·1	13·9	6·98	0·44	1·85	9·91	68·0	12·1
Merseyside	9·56	0·69	2·48	17·5	87·1	12·7	7·67	0·55	2·08	9·07	62·6	10·4
Total	8·75	0·77	2·26	17·1	86·7	13·6	7·14	0·51	1·90	9·73	67·4	11·8
Areas outside conurbations :												
Urban areas with populations of 100,000 or over	8·45	0·69	2·32	16·3	81·2	13·5	7·11	0·39	1·77	8·95	65·6	11·2
Urban areas with populations of 50,000 and under 100,000	10·1	0·69	2·45	16·9	83·0	13·9	7·96	0·58	1·85	9·29	67·0	11·7
Urban areas with populations under 50,000 ..	8·79	0·62	2·23	15·0	88·4	13·6	6·72	0·45	1·76	9·45	69·1	11·8
Rural areas	9·29	0·73	2·03	12·3	74·2	11·4	6·53	0·54	1·56	8·61	59·9	10·4
MIDLANDS AND EAST												
Regions :												
North Midland	7·57	0·61	1·89	12·8	76·4	11·7	6·10	0·44	1·66	8·34	62·6	10·6
Midland	7·92	0·71	2·04	14·3	78·7	11·4	6·10	0·49	1·70	8·82	62·3	10·1
Eastern	6·26	0·59	1·64	11·5	73·2	11·6	4·50	0·40	1·38	7·50	58·4	10·7
Total	7·36	0·65	1·89	13·0	76·2	11·6	5·67	0·45	1·60	8·29	61·1	10·4
Conurbation :												
West Midland	8·22	0·72	2·17	15·2	82·1	11·6	5·73	0·42	1·77	8·91	62·4	9·83
Areas outside conurbation :												
Urban areas with populations of 100,000 or over	6·94	0·47	2·01	14·2	80·3	11·9	6·27	0·44	1·56	8·58	59·1	10·4
Urban areas with populations of 50,000 and under 100,000	6·80	0·73	1·93	12·7	81·1	11·2	5·49	0·36	1·56	8·33	56·4	10·0
Urban areas with populations under 50,000 ..	7·24	0·69	1·87	12·6	84·2	12·2	5·85	0·44	1·64	8·19	63·5	10·9
Rural areas	7·34	0·56	1·69	10·6	72·2	10·9	5·31	0·48	1·43	7·41	60·5	10·4
GREATER LONDON	5·71	0·52	1·78	13·7	76·2	11·2	4·32	0·39	1·38	7·62	57·5	9·70
SOUTH												
Regions :												
Remainder of South East	6·08	0·60	1·82	12·9	74·4	13·0	4·53	0·40	1·38	7·98	58·6	12·3
Southern	6·50	0·58	1·69	12·7	76·3	11·7	4·71	0·49	1·29	7·83	59·1	11·0
South West	6·94	0·63	1·98	13·3	76·6	12·7	5·22	0·58	1·51	8·42	61·3	12·1
Total	6·53	0·60	1·83	13·0	75·8	12·5	4·84	0·49	1·40	8·10	59·7	11·8
Urban areas with populations of 100,000 and over	7·77	0·60	2·07	15·0	85·0	13·7	5·53	0·59	1·64	8·66	65·4	12·3
Urban areas with populations of 50,000 and under 100,000	5·93	0·56	1·85	13·0	72·3	12·5	4·95	0·49	1·30	7·78	55·8	11·9
Urban areas with populations under 50,000 ..	6·37	0·65	1·92	12·6	78·6	13·1	5·00	0·36	1·37	7·93	58·4	12·1
Rural areas	6·56	0·59	1·76	11·5	71·8	11·6	4·65	0·55	1·31	7·62	56·6	10·9
WALES	8·86	0·89	2·38	16·0	83·3	14·0	7·84	0·57	2·02	9·66	66·2	11·7
Urban areas with populations of 100,000 and over	7·63	0·95	2·21	18·1	85·2	13·9	8·04	0·46	2·01	9·18	64·7	10·8
Urban areas with populations of 50,000 and under 100,000	11·5	*1·40*	2·54	22·0	150·0	17·8	8·33	*1·75*	3·54	10·3	66·3	13·3
Urban areas with populations under 50,000 ..	8·98	0·82	2·48	15·7	88·5	14·3	8·44	0·65	2·09	9·55	65·4	11·9
Rural areas	9·09	0·86	2·60	13·3	80·2	13·5	7·06	0·49	1·86	8·73	68·7	11·7

Table V.—Death rates per million living from the five principal causes of death, by sex and age, 1848–72, 1901–10 and 1950

Males

Period	0–	1–	15–	45–	65 and over
1848–72	Convulsions 41,668	Scarlatina including diphtheria 2,763	Phthisis 3,647	Phthisis 3,661	Old age 27,726
	Atrophy and debility 29,466	Pneumonia 1,264	Typhus 762	Bronchitis 2,437	Bronchitis 11,007
	Premature birth 23,600	Measles 1,020	Fractures and contusions 530	Heart diseases 2,211	Heart diseases 6,572
	Diarrhoea 19,517	Typhus 959	Heart diseases 451	Apoplexy 1,123	Paralysis 6,153
	Pneumonia 17,054	Hydrocephalus 802	Pneumonia 358	Pneumonia 1,049	Apoplexy 4,486
1901–10	Diarrhoea 26,418	Phthisis and tuberculosis 1,232	Phthisis and tuberculosis 3,724	Phthisis and tuberculosis 5,396	Old age 18,339
	Premature birth 26,397	Pneumonia 1,206	Violence 670	Heart diseases 3,606	Heart diseases 13,329
	Atrophy and debility 21,700	Measles 824	Pneumonia 558	Cancer 2,471	Bronchitis 10,399
	Convulsions 16,829	Diphtheria 539	Heart diseases 478	Pneumonia 1,910	Cancer 6,997
	Pneumonia 14,830	Diarrhoea 477	Cancer 164	Bronchitis 1,489	Cerebral haemorrhage, embolism 5,298
1950	Birth injury 9,529	Accidents and violence 228	Accidents and violence 435	Heart diseases 3,467	Heart diseases 26,815
	Immaturity 6,639	Pneumonia 92	Tuberculosis 372	Cancer 3,412	Cancer 12,009
	Pneumonia 5,134	Tuberculosis 89	Cancer 288	Vascular lesions affecting C.N.S. 1,081	Vascular lesions affecting C.N.S. 10,784
	Congenital malformations 4,667	Cancer 80	Heart diseases 156	Bronchitis 1,080	Bronchitis 5,853
	Postnatal asphyxia 4,090	Diseases of digestive system 62	Diseases of digestive system 101	Tuberculosis 903	Hypertensive disease 3,460

Females

Period	0–	1–	15–	45–	65 and over
1848–72	Convulsions 31,055	Scarlatina including diphtheria 2,772	Phthisis 4,029	Phthisis 2,696	Old age 30,695
	Atrophy and debility 24,641	Pneumonia 1,238	Typhus 733	Heart diseases 2,153	Bronchitis 10,487
	Premature birth 18,535	Typhus 1,086	Childbirth 464	Bronchitis 2,143	Paralysis 5,858
	Diarrhoea 16,408	Whooping-cough 1,061	Heart diseases 454	Cancer 1,693	Heart diseases 5,811
	Pneumonia 12,592	Measles 1,028	Puerperal fever 240	Apoplexy 1,075	Dropsy 4,045
1901–10	Diarrhoea 21,746	Phthisis and tuberculosis 1,353	Phthisis and tuberculosis 2,897	Heart diseases 3,280	Old age 18,768
	Premature birth 20,861	Pneumonia 1,113	Heart diseases 500	Cancer 3,161	Heart diseases 12,059
	Atrophy and debility 16,809	Measles 800	Diseases of pregnancy, including puerperal sepsis 431	Phthisis and tuberculosis 2,546	Bronchitis 10,441
	Convulsions 12,578	Diphtheria 579	Pneumonia 307	Bronchitis 1,293	Cancer 7,023
	Pneumonia 11,224	Whooping-cough 569	Cancer 297	Cerebral haemorrhage 1,034	Cerebral haemorrhage 5,097
1950	Birth injury 6,029	Accidents and violence 127	Tuberculosis 377	Cancer 2,690	Heart diseases 21,766
	Immaturity 5,326	Pneumonia 88	Cancer 330	Heart diseases 1,320	Vascular lesions affecting C.N.S. 10,922
	Pneumonia 4,232	Tuberculosis 87	Chronic rheumatic heart disease 134	Vascular lesions affecting C.N.S. 1,152	Cancer 8,273
	Congenital malformations 4,018	Cancer 70	Accidents and violence 96	Chronic rheumatic heart disease 442	Bronchitis 3,160
	Postnatal asphyxia 2,581	Diseases of digestive system 51	Diseases of pregnancy and childbirth 63	Hypertensive disease 350	Hypertensive disease 2,901

INFANT MORTALITY AND STILLBIRTHS

The chances of a baby born in England and Wales dying during 1950 before its first birthday were about 1 in 33. Although a chance of 1 in 33 is not a frequent event—it is about the same as the chance of calling correctly in five successive tosses of a coin—the average risk of death between one birthday and the next does not again become as high until after the age of 60. This comparison reminds us that the loss of life in infancy is still considerable, despite the remarkable progress made in reducing the death toll among infants over the last 50 years.

The *general* trend of infant mortality since 1900 has been downward, apart from temporary fluctuations associated with such events as the two world wars, with large scale epidemics or with abnormal weather (Table XI, page 42). But of the decline prior to 1940 over 90 per cent took place among infants who had already survived one week and with the advent of chemotherapy and the antibiotics the risk of death in this group has diminished even more rapidly. The mortality rate in the *first* week of life stubbornly resisted improvement from 1920 until during the second world war (the 1939 rate was only 3 per cent less than it had been in 1920) and, from the time when stillbirths were first registered in 1928, the trend of the stillbirth rate followed a similar pattern. The marked decline in both rates between 1940 and 1944 and between 1947 and 1948 has been outstanding in contemporary vital statistics. Since 1948 there has again been a tendency for them to remain stationary (Table XII, page 43); the next few years will show whether the present standstill is a temporary phenomenon—a similar lag was experienced between 1944 and 1946—or whether the level trend characteristic of the 1920's and 1930's is about to be repeated at a lower level.

In 1950, for the first time since registration of births and deaths began, the decline in mortality at later periods of infancy had proceeded so far that deaths in the first week of life outnumbered those in the rest of the first year. Deaths within the first week accounted for 51 per cent of the total in 1950; forty years ago, when deaths among older infants were more frequent, the corresponding percentage was 19. The size of the infant mortality rate in future years will therefore increasingly depend on the course of mortality in the first week, so that the circumstances surrounding deaths in the first few days of life, and the reasons why these deaths are not diminishing in frequency as quickly as might be expected, are of paramount importance at the present time.

The measurement of infant mortality and stillbirths

A simple definition of an infant mortality rate is the number of registered deaths in a given year among liveborn infants at ages under twelve months per 1,000 live births registered during the same year.

The infant mortality rate as just defined fails to take account of two problems. In the first place, there may be a time-lag between the occurrence and registration of a birth. In the second place, some of the infants dying in a given year will have been born in the previous year and should therefore be related to live births which occurred then. For these reasons the annual number of births does not form the true infant population at risk. Adjustments may be

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necessary to take care of secular changes introduced either in the incentives to early registration (e.g. food rationing) or in the trend of the birth-rate. The problems have been discussed in the Medical Text volumes for 1940–45 (pages 27–29) and 1946–47 (pages 15–17) where an adjustment which takes both factors into account is described. Infant mortality rates have been calculated per 1,000 " related live birth occurrences " since 1941; the phrase is abbreviated in the table legends to " related live births ". Rates for a number of earlier years have been recalculated to bring them into line. The following table shows the infant mortality rates in terms of " registered " and in terms of " related " live births respectively for each of the last five years, and sets out the differences between them. The largest difference was in 1946, and amounted to 2·0 per 1,000.

	1945	1946	1947	1948	1949	1950
(a) Infant mortality per 1,000 " registered " live births ..	46·6	40·9	41·6	34·4	32·7	30·1
(b) Infant mortality per 1,000 " related " live births.. ..	46·0	42·9	41·4	33·9	32·4	29·6
Difference (b)–(a)	− 0·6	+2·0	−0·2	−0·5	−0·3	−0·5

The 1940–45 Medical Text shows how to compute " related " infant mortality rates by sex, legitimacy and quarters of the year, and for regional areas.

The necessary data for the calculation of infant mortality rates per 1,000 related live births in England and Wales during 1950 are given in Table 26 of Part I and Table YY of Part II of the Annual Review.

Definitions

The rates employed in the present series of tables all relate to the calendar year unless otherwise specified, and conform to the following definitions:

Infant Mortality Rate: deaths among liveborn infants at ages under one year per 1,000 related live births.

Neonatal Mortality Rate: deaths among liveborn infants under four weeks of age per 1,000 related live births.

   (a) *Early Neonatal Mortality Rate:* deaths among liveborn infants under one week of age per 1,000 related live births;

   (b) *Late Neonatal Mortality Rate:* deaths among liveborn infants one week or over but under four weeks of age per 1,000 related live births.

Post-neonatal Mortality Rate: deaths among liveborn infants aged four weeks or over but under one year of age per 1,000 related live births.

Stillbirth Rate: stillbirths, i.e. births at or over 28 weeks gestation which are not liveborn, per 1,000 total births (live and stillbirths).

In recent years the term " perinatal mortality " has come into use.* Perinatal mortality implies a combination of deaths prior to birth with deaths during and shortly after birth. At the present time there is no established definition of perinatal mortality and a number of combinations have been used, e.g. stillbirths and neonatal deaths, or stillbirths and early neonatal deaths (deaths under 1 week) as originally suggested by Peller. This latter combination, expressed as a ratio per 1,000 total births, is shown in Table XI and is further discussed on page 42.

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* Peller, S., Population Studies (1948), **1**, p. 411.

Use of the same denominator for fractional periods of the first year

Deaths in any part of the first year of life (for example: during the first week, the first four weeks, or from the fourth week to the end of the twelfth month) are traditionally expressed in terms of the same denominator—viz., the number of related live births.

Where the part of the year concerned does not start at birth, the quotient obtained by this procedure does not reflect the probability of dying during that part of the year among those alive at its start, i.e. those who survived the earlier period, for the denominator contains infants who died earlier in the year in addition to infants exposed to the risk of dying during the selected period. The quotient can only give the chances among those alive at birth of dying in the selected period of the first year rather than in any other, though it is often used in the more specific sense just mentioned. But when the number of live births is large relative to the number of deaths, the difference between a rate per 1,000 live births and one per 1,000 surviving live births is usually negligible ; for this reason the former rate may be used in practice to measure what can correctly be obtained only from the latter.

It is essential, however, to use the survivor denominator when sub-groups of the liveborn population which experience a heavy mortality risk (e.g. infants of low birth weight) are being compared with the remainder to show the chance of death in the period *among those entering* it, as opposed to the overall chance of death in that period rather than in another. The following example is hypothetical, but broadly indicates the relative magnitudes of the weight-specific rates.

	Under 3½ lb.	3½–5½ lb.	Over 5½ lb.	Total
Live births	1,000	11,000	188,000	200,000
Dying in neonatal period	600	1,320	1,880	3,800
NEONATAL MORTALITY RATE per 1,000 live births	*600·0*	*120·0*	*10·0*	*19·0*
Surviving neonatal period	400	9,680	186,120	196,200
Dying in post-neonatal period	50	390	1,760	2,200
POST-NEONATAL MORTALITY RATE per 1,000 neonatal survivors	*125·0*	*40·3*	*9·5*	*11·2*
POST-NEONATAL MORTALITY RATE per 1,000 live births	*50·0*	*35·5*	*9·4*	*11·0*
INFANT MORTALITY RATE per 1,000 live births	*650·0*	*155·5*	*19·4*	*30·0*

The post-neonatal rate for 1950 per 1,000 related live births less those dying during the neonatal period, i.e. per 1,000 related neonatal survivors was 11·5, as compared with a rate of 11·3 per 1,000 related live births. The difference is of the same order as that at the present time between a rate based on registered and a rate based on related live births (i.e. 11·4 and 11·1).

Relationship of stillbirth and infant mortality to reproductive wastage

Stillbirths and deaths among liveborn infants represent only part of the " Reproductive Wastage ", the loss to the community of potential human life during pregnancy and labour and in the first year of life. There remains the loss among embryos and fœtuses which fail to reach the 28th week of gestation, and are not liveborn. In the Report of the Medical and Biological Committee to the Royal Commission on Population* the rate of abortion—the expulsion

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* Papers of Royal Commission on Population, Vol. IV; Report of the Biological and Medical Committee, p. 4, S. 7.

or extraction of the embryo or fœtus from the uterus at any period up to the 28th week of pregnancy—is estimated as between 9 per cent and 16 per cent of all conceptions. This estimate includes all abortions, whether spontaneous, therapeutically induced or criminal. The Report points out that the proportion of abortions attributed to illegal interference varied considerably as between different studies quoted by the Inter-departmental Committee on Abortion*— the range was 23 per cent to 48 per cent—and that the Inter-departmental Committee gave as their own impression that 40 per cent may be so attributed. On the other hand, " the proportion of all pregnancies ending in spontaneous abortion may be placed within the relatively narrow limits of 7 to 11 per cent". Following the calculation adopted in the report to the Royal Commission, and accepting (with due regard to their very approximate nature) average rates of 9 per cent and 4 per cent of all pregnancies for spontaneous and induced abortion respectively, the relative distribution of reproductive wastage in 1950 might be roughly outlined thus:—

Source of Wastage	Number	Estimated Rate per 1,000 pregnancies
(a) Infant deaths in post-neonatal period	7,900	10
(b) Infant deaths in neonatal period	12,917	16
(c) Stillbirths (at or over 28 weeks' gestation)	16,084	20
Abortions (under 28 weeks' gestation) :—		
(d) spontaneous at estimate of 9 per cent of pregnancies	73,777	90
(e) induced at estimate of 4 per cent of pregnancies ..	32,790	40
Estimates of Total Reproductive Wastage (a) + (b) + (c) + (d) + (e)	143,468	175
Estimate of total number of pregnancies (assuming the 713,181 live and stillbirths in 1950 = 87 per cent) ..	819,748	1,000

These estimates of reproductive wastage may suggest that abortion represents in our time a medical and social problem as formidable as the problem of infant mortality a century ago. But in a number of early abortions the reason is often a deformed embryo which had it been preserved might not have developed into a normal child ; in these and other cases an abortion does not necessarily preclude a subsequent and more successful pregnancy. Moreover many couples intend to have a certain number of children and no more, so that " saved " abortions might not add to the family size. On the other hand a number of women are particularly liable to miscarry, and when childbearing starts late in reproductive life an abortion may terminate the only possible pregnancy. Abortion at any stage is also an important cause of maternal morbidity and mortality, and may in itself lessen the chances of subsequent fecundity.

As " immaturity " due to premature onset of labour is the principal reason for death within the first few days of life, and as premature labour is in many cases unexplained, it is likely that efforts to reduce " immaturity " must sooner or later take the whole of pregnancy into consideration. Some of the factors leading to spontaneous abortion in early pregnancy may be similar to those which cause premature labour in the later months, and if it were possible to avoid a proportion of early abortions it might not be possible in all cases to prevent premature delivery. The number of immature births at 28 weeks or over or alive at any stage might thereby increase, and lead to a rise in the still-birth and early neonatal mortality rates.

* Report of the Inter-departmental Committee on Abortion, H.M.S.O., 1939.

The certified causes of infant mortality

Table VI (page 37) demonstrates a relationship between the principal causes of death certified by attending practitioners and particular age-periods in the first year. The principal causes can be arranged in broad ætiological groupings according to whether in the present state of knowledge they are thought to be determined by factors operating before or at birth (prenatal and natal group including congenital malformations), or after birth (postnatal group). The distribution by cause within each age group clearly shows that:—

(a) Mortality in the early neonatal period, and to a somewhat lesser degree in the whole of the neonatal period, is dominated by the conditions here designated as " prenatal and natal "; they account for 94 per cent of the deaths in the early neonatal period, " immaturity " being the most prominent condition among them.

(b) Over 70 per cent of the causes of death from the fourth week to the end of the first year—the post-neonatal period—are infections or accidents which the new-born infant encounters for the first time in the environment which surrounds him from birth onwards; the proportion of " prenatal and natal " causes in this series is under 20 per cent.

(c) The late neonatal period, in which broadly speaking two-thirds of the deaths are attributable to " prenatal and natal " causes and one-third to " post-natal " causes, occupies an intermediate position between the other two.

The form of stillbirth certificate used in England and Wales does not require the practitioner to record his opinion as to cause. In Scotland he is required to do so, and the Registrar-General for Scotland regularly publishes an analysis of stillbirths by cause. These and other reports and studies indicate that the causes which lead to death in the early neonatal period are more akin to those which determine stillbirth than to those operating in later infancy. This has led to the view * that stillbirths and early neonatal deaths together—*perinatal mortality*—offer the basis for a combined rate which can measure more efficiently the influence on late fœtal and infant mortality of factors associated with the genotype, the mother, the maternal environment and the quality of obstetric care (" prenatal and natal " factors).

Table VII (page 38) gives mortality rates by sex and cause at various periods in the first year. The reader who wishes to study individual causes in greater detail or in finer age groupings should consult Table 27 of the Annual Review, Part I. The infant deaths in 1950 are classified there by age and sex for the majority of causes separately specified in the International Classification. Mortality is greater among male infants than among females from nearly every cause listed in Table 27. Notable exceptions to this general rule are whooping cough and the group of congenital malformations of the nervous system.

Immaturity

Table VII also shows a combined " immaturity " rate in respect of deaths classed to the group " certain diseases of early infancy " (rubrics 760–776). This rate comprises all such deaths with mention of immaturity, whether it was recorded as the underlying cause, or as a subsidiary or a contributory cause. Coding is in accordance with the International Classification ; mention of immaturity is coded only when the cause in question is one or other of those listed in rubrics 760–776. These rubrics contain 80 per cent of neonatal deaths, however, and the only important cause group omitted which may often be associated with immaturity is congenital malformation.

* Peller, S., Population Studies, **1** (1948), p. **441.**

The two rubrics " Immaturity unqualified (776) " and " Immaturity with mention of other cause subsidiary to it (774) " are considered jointly and referred to as " Immaturity, alone or primary to diseases other than of early infancy ". Conditions other than those in 760–773 were subsidiary to immaturity in only 238 certificates out of a total for " Immaturity alone or primary, etc." of 4,185, i.e. in less than 6 per cent of cases.

The following table shows the frequency with which immaturity was mentioned in association with causes which are classed to the group " Diseases of Early Infancy ".

International Classification numbers	Cause of Death	Neonatal period	
		Number of deaths	Per cent with mention of immaturity
760	Intracranial and spinal injury at birth ..	1,389	29
761	Other birth injuries (incl. cord conditions)..	412	40
762	Post-natal asphyxia and atelectasis ..	2,278	56
763	Pneumonia of newborn	843	33
764	Diarrhœa of newborn	100	16
765–768	Sepsis of newborn	53	34
769	Attributed to maternal toxæmia	287	86
770	Erythroblastosis	477	14
771	Hæmorrhagic disease	179	30
772	Nutritional maladjustment..	4	50
773	Ill-defined diseases	344	82
774–776	Immaturity mentioned alone or with other cause subsidiary to it	4,076	100
760–776	All deaths coded to Section " Diseases of Early Infancy "	10,442	66
All rubrics ..	All deaths in neonatal period	12,917	53

In all, more than half the neonatal deaths—6,882 out of a total of 12,917—had immaturity as a primary, subsidiary or contributory cause. It should be remembered, however, that immaturity in terms of the International Classification is not confined to birth weight alone but comprises *any* evidence of immaturity on the death certificate, viz. mention of a gestation period of 37 weeks or less, mention of prematurity or immaturity, or mention of the fact that the dead infant was one of a multiple birth.

Immaturity is without doubt the biggest single problem in neonatal mortality. From one point of view it is a measure of " pregnancy failure ", for the question at issue in most cases is " why did labour start prematurely ? " Infant mortality rates would be more precise if it were possible to show separately the death risks in respect of infants successfully carried to term and infants that failed to reach term as judged by a simple criterion of maturity such as the infant's weight at birth, or the length of the gestation. In Farr's words " to obtain the rate of mortality among infants born at the full term of nine months the premature children if we had the means should be struck out of the account both of the living and dying. This is impossible in the present state of statistical observation." It is now no longer *impossible* to do so, as it was in 1876 : it has in fact been done in several local and regional studies and birth weight is notified to the local health authority routinely in many areas. The advantage in doing so on a national scale might well repay the additional machinery and expense involved.

Variations in stillbirth and infant mortality by season of the year

Table VIII (page 39) displays the rates in each quarter of the year for still-births, and for mortality in the important age-periods of infancy according to principal causes. The quarterly rates are also shown as percentages of the annual rates. The downward trend throughout the year makes it difficult to compare the risks between the first and the fourth quarters, but the table does indicate the relative magnitudes of seasonal variation. The variation was least for stillbirths and early neonatal deaths, and most for post-neonatal deaths; late neonatal deaths occupied an intermediate position. (The percentage differences for stillbirth, and for early neonatal, late neonatal and post-neonatal mortality in each age-period between the July-September quarter (with minimal mortality) and the January-March quarter (with maximal mortality) were respectively 3 per cent, 10 per cent, 45 per cent and 81 per cent).

" Immaturity " and " congenital malformation " showed the least seasonal variation among the causes specified, and it is not surprising to find that " pneumonia and bronchitis " displayed the greatest. Attention is drawn to the marked seasonal variation in deaths attributed to accidental mechanical suffocation. (This cause was discussed on pages 254–55 of the 1948–49 Medical Text.)

Variations in stillbirth and infant mortality by social class

The following table gives 1950 rates by social class for stillbirths and infant deaths for Wales and three groups of standard regions in England. Further details and also social class variations by cause of infant deaths are included in the Supplement on Occupational Mortality.*

	Standard Region Group	Social Class					All social classes
		I	II	III	IV	V	
Stillbirth rates per 1,000 total births.	North	17·4	21·0	23·9	26·5	26·4	24·3
	Midland and East	13·8	19·8	22·5	23·6	25·5	22·6
	South	17·5	17·7	19·6	22·0	24·5	20·1
	Wales	17·6	24·4	25·3	31·5	33·8	27·2
Neonatal mortality (under 4 weeks) per 1,000 live births.	North	12·5	16·9	19·7	21·8	23·5	20·2
	Midland and East	14·9	15·6	18·0	19·8	22·8	18·5
	South	12·0	15·9	15·9	18·7	19·2	16·5
	Wales	16·2	21·3	19·1	24·7	26·9	21·6
Post-neonatal mortality (4 weeks and under 1 year) per 1,000 live births.	North	4·9	7·6	13·3	18·1	23·2	14·8
	Midland and East	5·2	6·5	10·3	12·8	18·1	10·8
	South	5·0	4·6	7·8	9·3	13·2	8·0
	Wales	4·3	7·3	13·4	16·9	22·2	14·1
Total infant mortality (under 1 year) per 1,000 live births.	North	17·4	24·5	33·0	39·9	46·8	35·0
	Midland and East	20·1	22·1	28·3	32·6	41·0	29·3
	South	17·0	20·5	23·7	28·0	32·4	24·5
	Wales	20·5	28·6	32·5	41·6	49·1	35·7

These figures confirm the evidence of Table XXI of the Text for 1948–49 that infant mortality was about two and a half times as great in Social Class V (unskilled workers) as in Social Class I (professional workers); that the gradient was more marked at the later age-periods of infancy than among stillbirths and neonatal deaths; and that it was particularly marked in the North and in Wales.

* Registrar General's Decennial Supplement, England and Wales, 1951, Occupational Mortality, Part I (H.M.S.O., price 7s. 6d.).

Variations in stillbirth and infant mortality in different areas

(a) Variations by age-period

Stillbirth rates and various measures of infant mortality during 1950 in each population density aggregate and in each standard region, are shown in Table IX (page 40).

The infant mortality rates were highest in urban areas with a population of 50,000 and under 100,000, and lowest in the conurbations and in rural areas.

	Stillbirth		Early neonatal mortality		Late neonatal mortality		Post-neonatal mortality	
	Rate	Per cent of mean	Rate	Per cent of mean	Rate	Per cent of mean	Rate	Per cent of mean
Conurbations (populations 1,000,000 and over)	22·0	96	14·8	97	3·0	86	11·1	98
Urban areas with populations 100,000 and over	22·7	100	15·5	101	3·5	100	11·4	101
Urban areas with populations 50,000–100,000..	23·7	104	15·7	103	3·8	109	12·4	110
Urban areas with populations less than 50,000	24·0	105	15·5	101	3·6	103	11·3	100
Rural areas	21·4	94	15·2	99	3·4	97	10·3	91
Mean (unweighted) of the above rates	22·8	100	15·3	100	3·5	100	11·3	100

As the distribution of the population by social class in urban areas of different size varies in different regions of England and Wales, no general conclusions can be drawn from this difference unless it is shown to be present *within* broad standard region groupings such as those set out in Table X (page 41) and to be independent of social class factors.*

Among the standard regions, Wales and the Northern and North Western regions showed the worst rates at almost every age-period, while London and the South Eastern returned the most favourable experience. The regional differences were more marked in the later periods of infancy. The following table shows the percentage by which each rate in these three regions exceeded the corresponding rate in the " London and the South Eastern " area.

Region	Per cent excess over rate in London and South-Eastern Region			
	Still-birth rate	Early neonatal rate	Late neonatal rate	Post-neonatal rate
Wales	+39	+29	+72	+78
Northern	+32	+24	+68	+117
North Western	+24	+25	+44	+82

The numbers of live births, stillbirths, neonatal deaths and infant deaths, together with the infant mortality rate, are given in Table 12, Annual Review, Part I, for each county, county borough, urban district, and rural district throughout England and Wales. It is suggested that local authorities who compare their experience with that of England and Wales should also compare it

* Registrar-General's Decennial Supplement, England and Wales, 1951, Occupational Mortality, Part I (H.M.S.O., price 7s. 6d.).

with the average rate for their own region or region-group. For example, an infant mortality rate of 29·6 in 1950—the average for England and Wales as a whole—could be a matter for concern in an area contained within the London and South Eastern region, where the average for 1950 was 23·7. On the other hand, a county borough with the same rate in one of the regions in the North of England might regard it as a relatively creditable achievement in comparison with the average infant mortality rate of 34·7 which prevailed in the North during 1950.

(b) Variations by cause of death

Table X (page 41) gives the infant mortality rate by cause (including an overall immaturity rate) for Wales and three groups of regions in England (North, Midlands and East, and South). The standard regions are amalgamated in this way to form population areas sufficiently large for a cause analysis covering only one year's experience ; it may also be more useful to compare Scotland and Northern Ireland with the North of England, than with England and Wales as a whole or any one of the smaller standard regions. These regional groups represent a broad threefold division of England but other alternative groupings might be equally appropriate.

The rates by cause for Wales and the three English region-groups are also shown as percentages of the national average. Mortality from the selected principal " postnatal " causes (pneumonia and bronchitis; gastro-enteritis; infective diseases and certain other infections; accidental suffocation) was considerably greater in Wales and the North than in the South, as was mortality from the " unclassified " group (most of the causes in which tend to be post-natal in type). Mortality rates from the principal " prenatal and natal " causes were also greater in these areas, though not to the same degree. The comparative excess in mortality was less marked for congenital malformations than for the others classed to the " prenatal and natal " groups (immaturity; debility and other ill-defined diseases; asphyxia and atelectasis; birth injuries; erythro-blastosis). Mortality from the last-mentioned cause, which is associated with rhesus factor incompatibility, exhibited a trend contrary to the others in the group in that the rate was highest in the South. The salient features of the table can be summarized by showing the percentage by which the 1950 rates in Wales and the North of England for the cause groupings just mentioned exceeded those in the South of England.

	South of England rate	Wales rate	North of England rate	Per cent excess mortality in Wales	Per cent excess mortality in North
Infant mortality (all causes)	24·3	35·5	34·7	+46	+43
Congenital malformations	4·0	4·5	4·6	+13	+15
Other " prenatal and natal " causes..	11·6	15·6	14·7	+34	+27
" Post-natal " causes	6·8	11·9	12·6	+75	+85
Unclassified (remaining causes) ..	1·9	3·4	2·8	+79	+47
Total with immaturity	8·6	11·5	11·4	+34	+33
Immaturity alone or primary ..	4·9	7·5	7·0	+53	+43
Immaturity associated with or subsidiary to certain other diseases	3·7	4·0	4·3	+ 8	+16

It is particularly noteworthy that the rate for "immaturity alone or primary, etc." was highest in Wales and the North and lowest in the South, while the rate for "immaturity associated with diseases of early infancy" though still keeping the same general trend showed a more uniform distribution. The

following table suggests an explanation; certifying practitioners in the South and Midlands of England may more often record one or other of the specific diseases of early infancy in addition to immaturity, whereas a greater number of practitioners in the North and in Wales may write immaturity alone.

	England and Wales	Wales	North group	Midlands and East group	South group
(a) Immaturity: whether alone, primary, or subsidiary to other diseases of early infancy..	10·1	11·5	11·4	9·9	8·6
(b) Immaturity alone or primary.. ..	6·0	7·5	7·0	5·7	4·9
(c) Percentage of total immaturity in which immaturity was alone or primary	59	65	61	58	57

For one of the important " diseases of early infancy "—post-natal asphyxia and atelectasis—immaturity was an associated condition in 56 per cent of the neonatal deaths assigned to it in 1950. Table X (page 41) shows that regional variation in respect of asphyxia and atelectasis was significantly less than for immaturity alone or primary, etc., the rate in the North group being only 6 per cent in excess of that in the South, as compared with an excess of 43 per cent. There may be a tendency to avoid putting " immaturity " as the underlying cause of death where a definite explanation can be given in terms of infant pathology, or alternatively the principal pathological findings may be added as subsidiary or contributory conditions. Either of these factors would bring about an artificial decline in the " immaturity alone or primary, etc." trend and an increase in the " associated immaturity " trend, which cannot always be separated from the trend of the diseases of early *infancy* without immaturity. From the viewpoint of ætiology a pathological cause of death, such as atelectasis, is simply the *immediate* cause and does not always by itself tell us much about the underlying condition. In many early neonatal deaths from atelectasis among premature infants the underlying cause will be a *maternal* condition, a reason why the pregnancy failed to continue to term, and this cannot always be specified precisely.

Since 1940 the death rate in England and Wales from " Immaturity alone or primary, etc." has gone down but the rate from asphyxia and atelectasis has been increasing.

Year	Immaturity alone or primary (774, 776)		Postnatal asphyxia, atelectasis (762)	
	Rate*	Per cent of rate in 1940	Rate*	Per cent of rate in 1940
1940	12·87	100	2·25	100
1941	13·16	102	2·17	96
1942	12·42	97	1·98	88
1943	11·46	89	1·77	79
1944	10·72	83	1·96	87
1945	9·69	75	2·77	123
1946	10·07	78	2·92	130
1947	8·46	66	2·90	129
1948	7·38	57	2·75	122
1949	6·79	53	3·28	146
1950	5·99	47	3·34	148

* Rates from 1940 to 1948 adjusted to 6th Revision Classification.

The evidence from Table X is in keeping with the view that this change is artificial and can perhaps be attributed to a combination of more frequent autopsies and changing fashion in certification. Table X illustrates how the tendency to prefer a proved autopsy finding as underlying cause to the less definite but ætiologically more meaningful term such as " immaturity ", makes it increasingly difficult to interpret regional variations in the rates of dying from different causes in the neonatal period unless " total immaturity " is examined at the same time. This is a topic which requires further study and research.

Secular trend of stillbirth and infant mortality

(a) Trend at different age-periods

Table XI (page 42) shows the trend of infant mortality at various age periods in the first year of life since 1906, and the trend of stillbirths since 1928. Stillbirths and early neonatal deaths have been combined to form the numerator for a rate measuring perinatal mortality, which is given in the last column of the table in terms of total births for each year since 1928.

Table XII (page 43) sets out the stillbirth, early neonatal, late neonatal and post-neonatal rates for legitimate and illegitimate births separately from 1940 onwards: the annual rates for each group are also shown as percentages of average rates of the group over the period 1936–39.

The differential trends exhibited by the rates for the selected age-periods have already been mentioned. They were discussed in the 1948–49 Medical Text (pages 29–31) where it was pointed out that the trend of early neonatal mortality followed a course parallel to the trend of stillbirth, and that the behaviour of mortality in the late neonatal period showed greater affinity with the post-neonatal than with the early neonatal trend.

A further demonstration of this important differential is provided in Table XII. The stillbirth and early neonatal legitimate rates expressed as percentages of the rates for 1936–39 have declined between 1948 and 1950 by only 1 per cent and 2 per cent respectively. In contrast to this, late neonatal mortality among legitimate infants has declined over the same period by 9 per cent, and post-neonatal mortality by 12 per cent. This " lag " in perinatal mortality was also evident between 1944 and 1946, and the reasons for its appearance are not immediately obvious. It is known that maternal age and parity (number of previous children) influence the likelihood of stillbirth (Civil Text, 1940–45, pages 129–132) and various studies have provided evidence that they are also important in the early neonatal period. The 1946–50 Civil Text (pages 143–145) shows that standardization for age and parity over the period 1939–50 in terms of the 1939 rates does not materially alter the shape of the stillbirth trend. The extract on page 36 from Table LXXXIII in the Civil Text demonstrates the point (reference should be made to the Civil Text itself for further details).*

(b) Trend at different age-periods in the standard regions

Table XIII (page 44) displays the stillbirth rate, the neonatal rate, and the post-neonatal rate in each of the standard regions from 1946 to 1949. The rates from 1947 to 1950 are shown as percentages of the 1946 rates to indicate the relative rates of decline. A space of four years is not long enough to demonstrate significant differences between regional trends but the table makes it evident that the standstill during 1950 in what had been a downward trend in the stillbirth rate, is a feature common to most of the regions.

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* Registrar General's Statistical Review for the five years 1946–50, Text, Civil (H.M.S.O., price 6s. 6d. net).

Year	Crude stillbirth rate		Stillbirth rate standardized on 1939 age-parity distribution	
	Rate	Per cent of 1939	Rate	Per cent of 1939
1939	37·8	100	37·8	100
1940	36·1	96	36·2	96
1941	34·8	92	34·5	91
1942	33·2	88	32·8	87
1943	30·1	80	29·5	78
1944	27·6	73	27·1	72
1945	27·7	73	26·9	71
1946	27·2	72	26·7	71
1947	24·1	64	24·2	64
1948	23·2	61	23·8	63
1949	22·7	60	23·7	63
1950	22·6	60	23·6	62

Table VI.—Principal Causes of Death under One Year arranged in ætiological groups : (a) Age-group Distribution per cent of all deaths assigned to each cause ; (b) Cause Distribution per 1,000 total deaths in each age-group. England and Wales, 1950

Ætiological Group	Cause of Death (and International Classification numbers)	Number of Infant Deaths (under 1 year)	Age distribution per cent of total infant deaths assigned to each cause — Infant mortality (under 1 year)	Neonatal Mortality — Under 4 weeks	Early (under 1 week)	Late (1 week and under 4 weeks)	Post-neonatal mortality (4 weeks and under 1 year)	Cause distribution per 1,000 total infant deaths in each age-group — Infant mortality (under 1 year)	Neonatal Mortality — Under 4 weeks	Early (under 1 week)	Late (1 week and under 4 weeks)	Post-neonatal mortality (4 weeks and under 1 year)
ALL CAUSES	.. ..	20,817	100	62	51	11	38	1,000	1,000	1,000	1,000	1,000
	Immaturity alone or primary to diseases other than of early infancy (774 ; 776)..	4,185	100	97	89	8	3	201	316	352	147	14
	Ill-defined diseases peculiar to early infancy (773)	406	100	85	70	15	15	20	27	27	26	8
	Injury at birth (760–761)	1,820	100	99	92	7	1	87	139	158	54	2
	Postnatal asphyxia and atelectasis (762) ..	2,340	100	98	91	7	2	112	176	200	68	8
PRENATAL AND NATAL (including congenital malformations)	Erythroblastosis (770)	502	100	95	86	9	5	24	37	41	20	3
	Hæmorrhagic disease of newborn (771)	184	100	97	81	16	3	9	14	14	13	1
	Antenatal maternal toxæmia (769)	288	100	99	92	7	1	14	22	25	9	0
	Total 'Prenatal and Natal' causes other congenital malformations	9,725	100	97	89	8	3	467	731	817	337	36
	Congenital malformations (750–759) ..	3,036	100	62	41	21	38	146	146	118	270	146
	Pneumonia and bronchitis (490–493 ; 500–502 ; 763) ..	3,753	100	23	9	14	77	180	68	31	234	364
	Gastro-enteritis (571 ; 764)	1,160	100	9	1	8	91	56	8	1	40	134
POSTNATAL	Diseases classified as infective ; others mainly infective (001–138 ; 340–343 ; 390–398 ; 480–483 ; 690–716 ; 766–768)	1,282	100	12	3	9	88	62	11	4	46	143
	Accidental mechanical suffocation (from vomit, food or foreign body ; or in cot) (E921–925)	592	100	15	5	10	85	28	7	3	26	64
	Total 'Postnatal' causes	6,787	100	18	6	12	82	326	94	39	346	705
UNCLASSIFIED	All other causes	1,269	100	30	21	9	70	61	29	26	47	113

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Table VII.—Principal Causes of Death under One Year in the Neonatal, Post-neonatal and other Age Periods, by Sex per 1,000 related live births. England and Wales, 1950

Infant Mortality per 1,000 related live births at various ages

International Classification numbers	Cause of Death		Infant mortality (under 1 year)	Neonatal mortality (under 4 weeks)	Post-neonatal mortality (4 weeks and under 1 year)	Neonatal Period — Early — Under 1 day	Neonatal Period — Early — 1 day and under 1 week	Neonatal Period — Early — Total under 1 week	Neonatal Period — Late — 1 week and under 4 weeks	Post-neonatal Period — 4 weeks and under 3 months	Post-neonatal Period — 3 months and under 6 months	Post-neonatal Period — 6 months and under 1 year
	All Causes	**M.**	**33·37**	**21·16**	**12·21**	**8·08**	**9·39**	**17·47**	**3·69**	**4·95**	**3·94**	**3·32**
		F.	**25·66**	**15·69**	**9·97**	**6·27**	**6·51**	**12·78**	**2·91**	**3·61**	**3·47**	**2·91**
774 ; 776	Immaturity alone or primary to diseases other than of early infancy	M.	6·60	6·46	0·14	3·42	2·51	5·92	0·54	0·12	0·01	0·00
		F.	5·36	5·18	0·18	2·66	2·09	4·75	0·43	0·14	0·03	—
773	Ill-defined diseases peculiar to early infancy	M.	0·63	0·54	0·09	0·21	0·23	0·44	0·10	0·07	0·01	0·01
		F.	0·53	0·44	0·09	0·21	0·16	0·37	0·07	0·07	0·02	0·00
760–761	Injury at birth	M.	3·22	3·20	0·02	1·38	1·62	3·00	0·20	0·01	0·00	0·00
		F.	1·96	1·92	0·04	0·93	0·84	1·77	0·15	0·02	0·01	0·00
762	Postnatal asphyxia and atelectasis	M.	4·06	3·95	0·11	1·79	1·89	3·68	0·27	0·07	0·03	0·00
		F.	2·60	2·53	0·07	1·25	1·12	2·36	0·17	0·04	0·03	0·00
770	Erythroblastosis	M.	0·80	0·75	0·05	0·17	0·50	0·67	0·08	0·03	0·01	—
		F.	0·64	0·61	0·03	0·21	0·35	0·56	0·05	0·02	—	0·00
750–759	Congenital malformations	M.	4·61	2·84	1·77	0·54	1·40	1·95	0·89	0·98	0·44	0·35
		F.	4·02	2·54	1·48	0·54	1·10	1·64	0·90	0·65	0·46	0·37
490–493 ; 500–502 ; 763	Pneumonia and bronchitis	M.	5·82	1·48	4·34	0·04	0·53	0·57	0·91	1·70	1·54	1·12
		F.	4·76	1·02	3·74	0·02	0·37	0·39	0·63	1·30	1·40	1·03
571, 764	Gastro-enteritis	M.	1·99	0·19	1·80	—	0·02	0·02	0·17	0·73	0·61	0·45
		F.	1·27	0·10	1·17	—	0·00	0·00	0·10	0·40	0·45	0·33
001–138; 340–343; 390–398; 480–483; 690–716; 766–768	Diseases classified as infective ; others mainly infective	M.	1·92	0·22	1·70	0·01	0·05	0·06	0·16	0·42	0·57	0·72
		F.	1·68	0·20	1·48	0·01	0·05	0·06	0·14	0·38	0·47	0·62
E921–025	Accidental mechanical suffocation (from vomit, food or foreign body ; or in cot)	M.	0·97	0·15	0·82	0·01	0·03	0·05	0·10	0·38	0·33	0·11
		F.	0·70	0·11	0·59	0·00	0·03	0·04	0·07	0·30	0·22	0·07
Remainder	All other causes	M.	2·75	1·38	1·37	0·51	0·62	1·13	0·25	0·44	0·39	0·54
		F.	2·17	1·03	1·14	0·45	0·39	0·83	0·20	0·28	0·39	0·47
774 ; 776 ; 760·5–773·5	*Immaturity, or with mention of immaturity*	*M.*	*11·42*	*11·21*	*0·21*	*5·24*	*4·79*	*10·03*	*1·18*	*0·18*	*0·02*	*0·01*
		F.	*8·69*	*8·43*	*0·26*	*3·94*	*3·62*	*7·56*	*0·87*	*0·21*	*0·05*	*—*
774 ; 776	*Immaturity alone, or primary to dis. other than of early infancy*	*M.*	*6·60*	*6·46*	*0·14*	*3·42*	*2·51*	*5·92*	*0·54*	*0·12*	*0·01*	*0·01*
		F.	*5·36*	*5·18*	*0·14*	*2·66*	*2·09*	*4·75*	*0·43*	*0·14*	*0·01*	*0·00*
760·5–773·5	*Immaturity associated with dis. of early infancy*	*M.*	*4·82*	*4·75*	*0·07*	*1·82*	*2·29*	*4·11*	*0·64*	*0·06*	*0·00*	*0·00*
		F.	*3·34*	*3·25*	*0·09*	*1·28*	*1·53*	*2·81*	*0·44*	*0·07*	*0·02*	*—*
760·0–773·0 and remainder	*All other causes*	*M.*	*21·96*	*9·95*	*12·01*	*2·84*	*4·60*	*7·44*	*2·51*	*4·77*	*3·92*	*3·32*
		F.	*16·98*	*7·26*	*9·72*	*2·33*	*2·89*	*5·22*	*2·04*	*3·39*	*3·42*	*2·91*

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...the Early Neonatal, Late Neonatal and Post-neonatal Periods by legitimacy for each sex and by quarter of the year, per 1,000 related live births. **Principal Causes of Death under One Year, by legitimacy for each sex and by quarter of the year. England and Wales, 1950**

International Classification numbers	Age Period or Cause of Death	Sex	ANNUAL RATES (per 1,000 related live births)*			QUARTERLY RATES (per 1,000 live birth occurrences)*				QUARTERLY RATES AS PER CENT OF ANNUAL RATES			
			Legitimate infants	Illegitimate infants	All infants	JAN. TO MARCH	APRIL TO JUNE	JULY TO SEPT.	OCT. TO DEC.	JAN. TO MARCH	APRIL TO JUNE	JULY TO SEPT.	OCT. TO DEC.
	STILLBIRTHS (at or over 28 weeks gestation)*	M.	23.3	31.2	22.6	22.9	22.4	22.2	22.7	101	99	98	100
		F.	21.1	26.9									
	INFANT MORTALITY (under 1 year)	M.	32.8	43.8	29.6	36.4	27.4	24.5	31.7	123	93	83	107
		F.	25.2	34.8									
	EARLY NEONATAL MORTALITY (under 1 week)	M.	17.2	23.3	15.2	15.8	15.0	14.3	15.8	104	99	94	104
		F.	12.4	19.4									
	LATE NEONATAL MORTALITY (1 week and under 4 weeks)	M.	3.6	5.3	3.3	4.1	3.1	2.6	3.5	124	94	79	106
		F.	2.9	3.6									
	POST-NEONATAL MORTALITY (4 weeks and under 1 year)	M.	12.1	15.2	11.1	16.5	9.6	7.5	11.6	149	86	68	105
		F.	9.9	11.8									
774; 776	Immaturity alone or primary to diseases other than of early infancy	M.	6.4	8.5	6.0	6.4	5.8	5.8	6.0	107	97	97	100
		F.	5.2	7.3									
773	Ill-defined diseases peculiar to early infancy	M.	0.6	1.3	0.6	0.8	0.4	0.4	0.7	133	67	67	117
		F.	0.5	1.2									
760-761	Injury at birth	M.	3.2	3.6	2.6	2.8	2.6	2.4	2.6	108	100	92	100
		F.	1.9	2.7									
762	Postnatal asphyxia and atelectasis	M.	4.0	4.4	3.3	3.5	3.0	3.2	3.8	106	91	97	115
		F.	2.5	3.9									
770	Erythroblastosis	M.	0.8	0.5	0.7	0.8	0.7	0.6	0.8	114	100	86	114
		F.	0.6	0.5									
750-759	Congenital malformations	M.	4.6	4.1	4.3	4.7	4.3	4.2	4.2	109	100	98	98
		F.	4.0	3.8									
490-493; 500-502; 763	Pneumonia and bronchitis	M.	5.8	7.9	5.3	9.1	3.8	2.9	5.7	172	72	55	108
		F.	4.7	6.1									
571; 764	Gastro-enteritis	M.	1.9	3.7	1.6	2.3	1.6	1.1	1.7	144	100	69	106
		F.	1.2	1.8									
001-138; 340-343; 390-398; 480-483; 690-716; 766-768	Diseases classified as infective, others mainly infective	M.	1.9	2.1	1.8	2.3	1.9	1.4	1.8	128	106	78	100
		F.	1.7	1.6									
E921-925	Accidental mechanical suffocation (from vomit, food, or foreign body; or in cot)	M.	0.9	1.6	0.8	1.2	0.7	0.5	1.1	150	88	63	138
		F.	0.7	0.8									
Remainder	All other causes	M.	2.6	5.9	2.5	2.7	2.6	2.0	3.4	108	104	80	136
		F.	2.0	5.2									
774; 776; 760.5-773.5	Immaturity, or with mention of immaturity	M.	11.2	14.2	10.1	10.7	9.3	9.6	10.6	106	92	95	105
		F.	8.5	11.4									
774; 776	Immaturity alone, or primary to diseases other than of early infancy	M.	6.4	8.5	6.0	6.4	5.8	5.8	6.0	107	97	97	100
		F.	5.2	7.3									
760.5-773.5	Immaturity associated with diseases of early infancy	M.	4.7	5.7	4.1	4.3	3.5	3.8	4.6	105	85	93	112
		F.	3.3	4.1									
760.0-773.0 and remainder	All other causes	M.	21.6	29.6	19.6	25.6	18.1	14.9	21.1	131	92	76	108
		F.	16.7	23.5									

* Stillbirth rates are shown in all cases per 1,000 births (live and still).

Table IX.—Stillbirths per 1,000 total births, and Deaths in the Neonatal, Post-neonatal and other Age Periods under One Year per 1,000 related live births. England and Wales; Population Density Aggregates; Standard Regions; Conurbations within Standard Regions, 1950

Infant Mortality per 1,000 related live births at various ages

Area	Stillbirths per 1,000 total births	Infant mortality (under 1 year)	Neonatal mortality (under 4 weeks)	Post-neonatal mortality (4 weeks and under 1 year)	Neonatal Period — Early — Under 1 day	Neonatal Period — Early — 1 day and under 1 week	Neonatal Period — Early — Total under 1 week	Neonatal Period — Late — 1 week and under 4 weeks	Post-neonatal Period — 4 weeks and under 3 months	Post-neonatal Period — 3 months and under 6 months	Post-neonatal Period — 6 months and under 1 year
England and Wales	**22.6**	**29.6**	**18.5**	**11.1**	**7.2**	**8.0**	**15.2**	**3.3**	**4.3**	**3.7**	**3.1**
Population Density Aggregates — Conurbations	22.0	28.9	17.8	11.1	7.1	7.7	14.8	3.0	4.4	3.8	2.9
Other urban areas:— with populations of 100,000 and over	22.7	30.4	19.0	11.4	7.7	7.8	15.5	3.5	4.3	3.8	3.3
with populations of 50,000 to 100,000	23.7	31.9	19.5	12.4	7.0	8.7	15.7	3.8	4.7	3.9	3.8
with populations of under 50,000	24.0	30.4	19.1	11.3	7.3	8.2	15.5	3.6	4.2	3.8	3.3
Rural areas	21.4	28.9	18.6	10.3	7.0	8.2	15.2	3.4	4.0	3.4	2.9
Standard Regions — Northern	25.8	37.7	20.8	16.9	7.3	9.4	16.6	4.2	6.4	5.8	4.7
East and West Ridings	22.9	32.8	19.5	13.3	7.6	7.8	15.5	4.0	5.0	5.0	3.3
North Western	24.4	34.5	20.3	14.2	7.7	9.0	16.7	3.6	5.8	4.9	3.5
North Midland	23.0	30.6	18.9	11.7	7.7	7.8	15.5	3.4	3.7	4.1	3.9
Midland	23.8	31.2	19.4	11.8	7.8	8.4	16.2	3.2	4.4	3.7	3.7
Eastern	20.6	23.9	16.3	7.6	6.2	7.3	13.5	2.8	3.2	2.1	2.3
London and South Eastern	19.6	23.7	15.9	7.8	6.7	6.7	13.4	2.5	3.0	2.6	2.2
Southern	18.9	24.6	16.7	7.9	6.0	7.4	13.3	3.4	3.4	2.3	2.2
South Western	22.5	26.4	18.5	7.9	6.8	8.7	15.5	3.0	2.9	2.2	2.8
Wales	27.2	35.5	21.6	13.9	8.1	9.2	17.3	4.3	5.6	4.6	3.7
Wales I	27.2	35.5	21.6	13.9	8.2	9.0	17.1	4.5	5.7	4.8	3.4
Wales II	27.2	35.5	21.8	13.7	8.0	9.7	17.7	4.1	5.2	4.3	4.2
Conurbations within Standard Regions — Tyneside conurbation	27.1	36.8	20.0	16.8	7.2	9.1	16.3	3.7	6.2	5.3	5.3
Rest of Northern	25.4	38.1	21.1	17.0	7.3	9.5	16.8	4.3	6.5	5.9	4.6
West Yorkshire conurbation	23.8	31.4	18.6	12.8	7.4	7.5	14.9	3.7	5.0	4.5	3.3
Rest of East and West Riding	22.3	33.4	20.0	13.4	7.8	8.0	15.8	4.2	5.0	5.2	3.2
S.E. Lancashire conurbation	24.2	34.2	19.9	14.3	7.8	8.5	16.4	3.5	5.9	5.1	3.3
Merseyside conurbation	23.0	35.8	19.8	16.0	7.8	9.0	16.7	3.1	7.1	5.7	3.2
Rest of North Western	25.5	33.9	21.0	12.9	7.6	9.4	17.0	4.0	5.0	4.2	3.7
West Midland conurbation	23.8	31.2	19.3	11.9	7.5	8.6	16.1	3.2	4.2	3.8	3.9
Rest of Midland	23.7	31.4	19.6	11.8	8.0	8.2	16.2	3.4	4.6	3.6	3.6
Greater London conurbation	19.6	23.4	15.8	7.6	6.6	6.8	13.4	2.4	3.0	2.5	2.1
Rest of South Eastern	19.8	24.3	16.0	8.3	7.0	6.4	13.4	2.6	3.0	2.9	2.4

Table X.—Principal Causes of Death under One Year per 1,000 related live births in Standard Region Groups; England and Wales, 1950

International Classification numbers	Cause of Death	Infant mortality rates per 1,000 related live births					Infant mortality rates per cent of England and Wales rates				
		England and Wales	Wales	North	Midlands and East	South	England and Wales	Wales	North	Midlands and East	South
	All Causes	29·6	35·5	34·7	29·1	24·3	100	120	117	98	82
774; 776	Immaturity alone or with other cause subsidiary to it ..	6·0	7·5	7·0	5·7	4·9	100	125	117	95	82
773..	Ill-defined diseases peculiar to early infancy ..	0·6	1·0	0·8	0·6	0·4	100	167	133	100	67
760-761	Injury at birth	2·6	3·1	2·9	2·6	2·2	100	119	112	100	85
762	Postnatal asphyxia and atelectasis	3·3	3·3	3·4	3·4	3·2	100	100	103	103	97
770	Erythroblastosis	0·7	0·7	0·6	0·6	0·9	100	100	86	86	129
750-759	Congenital malformations	4·3	4·5	4·6	4·3	4·0	100	105	107	100	93
490-493; 500-502; 763.	Pneumonia and bronchitis	5·3	6·6	6·9	4·8	4·0	100	125	130	91	75
571; 764	Gastro-enteritis..	1·6	2·0	2·5	1·5	0·9	100	125	156	94	56
001-138; 340-343; 390-398; 480-483; 690-716; 766-768.	Disease classed as infective; others mainly infective..	1·8	2·3	2·2	1·9	1·3	100	128	122	106	72
E921-925	Accidental mechanical suffocation (from vomit, food, or foreign body; or in cot)	0·8	1·0	1·0	0·9	0·6	100	125	125	113	75
	All other causes	2·5	3·4	2·8	2·7	1·9	100	136	112	108	76
774; 776; 760·5-773·5; 774; 776 ..	Immaturity, or with mention of immaturity ..	10·1	11·5	11·4	9·9	8·6	100	114	113	98	85
760·5-773·5	Immaturity alone, or primary to dis. other than of early infancy .. .. Immaturity associated with dis. of early infancy	6·0	7·5	7·0	5·7	4·9	100	125	117	95	82
		4·1	4·0	4·3	4·2	3·7	100	98	105	102	90
760·0-773·0 and remainder	All other causes..	19·6	24·0	23·4	19·1	15·7	100	122	119	97	80

Table XI.—Secular Trend of Stillbirths per 1,000 total births, 1928–1950, and o[ther] Deaths in the Neonatal, Post-neonatal and other Age Periods under One Yea[r] per 1,000 live births, 1881–1950. England and Wales.

| | Rates per 1,000 live births * | | | | | | | | | Rates per 1,000 total births † | |
| | Total infant mortality (under 1 year) | Neonatal mortality (under 4 weeks) | Post-neonatal mortality (4 weeks and under 1 year) | Neonatal Mortality | | Post-neonatal Mortality | | | | Stillbirths (at or over 28 weeks gestation) | Stillbirths plus early neonatal deaths (Perinatal mortality) |
				Early (under 1 week)	Late (1 week and under 4 weeks)	4 weeks and under 3 months	3 months and under 6 months	6 months and under 9 months	9 months and under 1 year		
1906–1910	117·1	40·2	76·9	24·5	15·7	22·8	22·0	17·3	14·8	—	—
1911–1915	108·7	39·0	69·8	24·1	14·9	20·2	19·6	15·9	14·1	—	—
1916–1920	90·9	37·0	53·9	23·4	13·7	16·5	14·6	12·0	10·8	—	—
1921–1925	74·9	33·4	41·6	21·7	11·7	12·8	11·3	9·2	8·3	—	—
1926–1930	67·6	31·8	35·7	21·8	9·9	10·8	9·5	8·0	7·4	—	—
1931–1935	61·9	31·4	30·5	22·4	9·0	9·9	8·5	6·5	5·6	—	—
1936–1940	55·3	29·2	26·0	21·5	7·7	8·8	7·8	5·4	4·0	—	—
1941–1945	49·8	26·0	23·8	18·7	7·2	8·9	7·7	4·4	2·8	—	—
1946–1950	36·3	21·1	15·2	16·2	4·9	5·8	5·0	2·8	1·6	—	—
1906	132·5	41·9	90·6	25·0	16·9	25·7	27·0	20·7	17·2	—	—
1907	117·6	40·7	77·0	24·4	16·4	23·3	21·3	17·3	15·1	—	—
1908	120·4	40·3	80·1	24·3	16·0	24·2	23·6	17·7	14·6	—	—
1909	108·7	39·8	69·0	24·7	15·0	20·4	19·2	15·6	13·8	—	—
1910	105·4	38·5	67·0	24·1	14·3	20·0	18·8	15·0	13·2	—	—
1911	129·2	40·6	88·6	24·3	16·5	24·7	25·9	20·6	17·4	—	—
1912	94·7	38·4	56·5	24·2	14·3	17·7	14·9	12·5	11·4	—	—
1913	108·9	39·5	69·4	24·5	15·1	20·3	19·8	15·7	13·6	—	—
1914	104·4	38·5	66·0	24·1	14·4	19·3	18·7	15·0	13·0	—	—
1915	105·8	37·7	68·0	23·4	14·4	18·6	18·2	16·0	15·2	—	—
1916	91·1	36·9	54·1	23·2	13·9	16·9	15·2	11·7	10·3	—	—
1917	91·1	37·1	54·1	23·4	13·8	16·9	15·0	11·6	10·6	—	—
1918	97·9	36·6	61·3	23·2	13·5	17·1	16·1	14·4	13·7	—	—
1919	93·2	40·4	52·9	25·9	14·6	16·4	14·4	11·8	10·3	—	—
1920	84·5	35·0	49·5	21·9	13·2	15·5	13·0	11·0	10·0	—	—
1921	81·2	35·2	45·9	22·4	12·9	14·7	13·7	9·7	7·8	—	—
1922	74·7	33·9	40·8	22·0	12·1	12·4	10·6	9·2	8·6	—	—
1923	69·2	31·9	37·3	21·1	10·8	11·4	10·0	8·3	7·6	—	—
1924	74·2	33·0	41·3	21·8	11·2	12·4	10·8	9·3	8·8	—	—
1925	74·5	32·3	42·1	21·2	11·1	12·5	11·2	9·4	9·0	—	—
1926	69·8	31·8	37·9	21·3	10·7	11·6	10·3	8·5	7·5	—	—
1927	68·5	32·2	36·2	22·1	10·2	10·6	9·5	8·3	7·8	—	—
1928	65·3	31·1	34·2	21·6	9·5	10·7	9·3	7·4	6·8	40·1	60·8
1929	73·9	32·8	41·1	22·2	10·5	11·5	10·6	9·8	9·2	40·0	61·4
1930	60·2	30·9	29·3	22·0	8·9	9·7	7·9	6·1	5·6	40·8	61·9
1931	65·7	31·5	34·2	22·1	9·5	10·8	9·2	7·6	6·6	40·9	62·1
1932	64·5	31·5	33·0	22·4	9·2	10·8	9·0	7·1	6·1	41·3	62·8
1933	62·7	32·1	30·6	22·9	9·3	9·8	8·6	6·5	5·7	41·4	63·4
1934	59·3	31·4	27·9	22·7	8·7	8·9	7·7	6·0	5·3	40·5	62·2
1935	57·0	30·4	26·6	22·0	8·4	9·1	7·7	5·5	4·3	40·7	61·8
1936	58·7	30·2	28·5	21·9	8·2	9·3	8·3	6·0	4·9	39·7	60·7
1937	57·7	29·7	28·0	22·0	7·8	9·4	8·3	5·9	4·4	39·0	60·2
1938	52·8	28·3	24·5	21·1	7·1	8·2	7·3	5·0	4·0	38·3	58·6
1939	50·6	28·3	22·2	21·2	7·1	7·9	7·0	4·4	2·9	38·1	58·6
1940	56·8	29·6	27·2	21·3	8·3	9·3	8·2	5·7	4·0	37·2	57·8
1941	60·0	29·0	31·1	20·7	8·3	11·3	9·7	5·8	4·3	34·8	54·7
1942	50·6	27·2	23·4	19·6	7·7	8·7	7·5	4·4	2·8	33·2	52·0
1943	49·1	25·2	23·9	18·3	6·9	8·8	7·8	4·5	2·8	30·1	47·8
1944	45·4	24·4	21·1	17·5	6·9	8·0	7·0	3·8	2·3	27·6	44·5
1945	46·0	24·8	21·3	18·0	6·8	8·2	7·0	3·8	2·3	27·6	45·2
1946	42·9	24·5	18·4	17·8	6·7	7·1	6·1	3·3	1·9	27·2	44·3
1947	41·4	22·7	18·6	16·5	6·2	6·9	6·0	3·6	2·1	24·1	40·3
1948	33·9	19·7	14·2	15·6	4·1	5·5	4·8	2·5	1·4	23·2	38·5
1949	32·4	19·3	13·0	15·6	3·7	4·8	4·4	2·4	1·4	22·7	38·0
1950	29·6	18·5	11·1	15·2	3·3	4·3	3·7	1·9	1·2	22·6	37·5

* Rates based on related births from 1926 onwards.
† The births upon which these rates are based for successive calendar years are numbers registered up to 1938 inclusive and numbers of occurrences from 1939.

Table XII.—Secular Trend of Legitimate and Illegitimate Stillbirths per 1,000 total births, and of Legitimate and Illegitimate Deaths in Early Neonatal, Late Neonatal and Post-neonatal Periods per 1,000 related live births. England and Wales, 1936-1950

		1936 to 1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Legitimate Infants	STILLBIRTHS (at or over 28 wks. gestation) — Annual rate	38·3	36·7	34·2	32·8	29·6	27·0	27·3	26·7	23·8	22·7	22·3	22·2
	% of 1936-39	100	96	89	86	77	70	71	70	62	59	58	58
	EARLY NEONATAL MORTALITY (Deaths under 1 wk.) — Annual rate	21·0	20·9	20·2	18·9	17·7	16·9	17·4	17·4	16·1	15·3	15·1	14·9
	% of 1936-39	100	100	96	90	84	80	83	83	77	73	72	71
	LATE NEONATAL MORTALITY (Deaths 1–4 wks.) — Annual rate	7·4	8·1	8·1	7·5	6·8	6·6	6·4	6·5	6·0	4·0	3·6	3·3
	% of 1936-39	100	109	109	101	92	89	86	88	81	54	49	45
	POST-NEONATAL MORTALITY (Deaths 4 wks.–1 yr.) — Annual rate	25·1	26·6	30·5	22·8	23·2	20·2	20·3	17·7	18·3	14·0	13·0	11·0
	% of 1936-39	100	106	122	91	92	80	81	71	73	56	52	44
Illegitimate Infants	STILLBIRTHS (at or over 28 wks. gestation) — Annual rate	49·6	47·6	45·8	40·8	37·5	34·3	31·5	33·2	30·6	31·6	29·5	29·1
	% of 1936-39	100	96	92	82	76	69	64	67	62	64	59	59
	EARLY NEONATAL MORTALITY (Deaths under 1 wk.) — Annual rate	34·4	31·2	29·8	30·0	27·0	25·2	24·3	23·7	23·5	22·0	24·9	21·4
	% of 1936-39	100	91	87	87	78	73	71	69	68	64	72	62
	LATE NEONATAL MORTALITY (Deaths 1–4 wks.) — Annual rate	10·9	12·8	11·2	10·7	9·3	10·3	10·0	9·6	9·9	5·5	4·8	4·5
	% of 1936-39	100	117	103	98	85	94	92	88	91	50	44	41
	POST-NEONATAL MORTALITY (Deaths 4 wks.–1 yr.) — Annual rate	41·6	38·4	41·3	34·3	35·1	33·0	30·5	26·9	24·7	17·9	15·1	13·6
	% of 1936-39	100	92	99	82	84	79	73	65	59	43	36	33

Table XIII.—Secular Trend of Stillbirths per 1,000 total births, and of Deaths in the Neonatal and Post-neonatal Periods per 1,000 related live births. England and Wales ; Standard Regions, 1946 to 1950

	Standard Regions	Rates in each year 1946 to 1950					Rates in 1947 to 1950 per cent of rate in 1946				
		1946	1947	1948	1949	1950	1946	1947	1948	1949	1950
STILLBIRTHS (at or over 28 weeks gestation) per 1,000 live and stillbirths	ENGLAND AND WALES ..	27·2	24·1	23·2	22·7	22·6	100	89	85	83	83
	Northern	30·1	26·1	25·2	24·6	25·8	100	87	84	82	86
	East and West Ridings	28·9	25·9	24·2	23·5	22·9	100	90	84	81	79
	North Western	30·7	26·5	26·5	25·5	24·4	100	86	86	83	79
	North Midland	25·0	24·0	23·9	22·2	23·0	100	96	96	89	92
	Midland	26·4	24·9	23·5	23·1	23·8	100	94	89	87	90
	Eastern	26·1	21·3	21·5	20·9	20·6	100	82	82	80	79
	London and South Eastern ..	24·0	21·6	19·9	19·9	19·6	100	90	83	83	82
	Southern	25·7	21·8	20·9	19·4	18·9	100	85	81	75	74
	South Western	25·7	23·5	22·4	22·0	22·5	100	91	87	86	88
	Wales	33·1	28·4	26·8	28·2	27·2	100	86	81	85	82
NEONATAL MORTALITY per 1,000 related live births	ENGLAND AND WALES ..	24·5	22·7	19·7	19·3	18·5	100	93	80	79	76
	Northern	26·8	24·7	21·3	22·0	20·8	100	92	79	82	78
	East and West Ridings	24·9	24·3	20·7	20·6	19·5	100	98	83	83	78
	North Western	29·5	27·7	22·6	21·3	20·3	100	94	77	72	69
	North Midland	24·5	23·2	21·5	18·8	18·9	100	95	88	77	77
	Midland	26·2	22·7	21·1	19·6	19·4	100	87	81	75	74
	Eastern	21·8	20·7	16·9	16·2	16·3	100	95	78	74	75
	London and South Eastern ..	20·9	18·7	16·4	16·8	15·9	100	89	78	80	76
	Southern	21·3	20·2	18·0	17·6	16·7	100	95	85	83	78
	South Western	24·6	22·7	18·8	19·7	18·5	100	92	76	80	75
	Wales	26·1	25·3	22·5	22·9	21·6	100	97	86	88	83
POST-NEONATAL MORTALITY per 1,000 related live births	ENGLAND AND WALES ..	18·4	18·6	14·2	13·0	11·1	100	101	77	71	60
	Northern	24·6	23·7	20·5	19·9	16·9	100	96	83	81	69
	East and West Ridings	19·4	21·9	17·3	15·4	13·3	100	113	89	79	69
	North Western	26·6	26·8	19·2	18·1	14·2	100	101	72	68	53
	North Midland	17·3	19·0	15·6	13·8	11·7	100	110	90	80	68
	Midland	20·8	19·1	14·7	13·8	11·8	100	92	71	66	57
	Eastern	12·5	11·1	9·1	8·6	7·6	100	89	73	69	61
	London and South Eastern ..	13·7	14·2	10·5	8·8	7·8	100	104	77	64	57
	Southern	13·2	13·1	8·8	8·6	7·9	100	99	67	65	60
	South Western	14·7	12·6	9·5	9·1	7·9	100	86	65	62	54
	Wales	21·0	23·9	16·8	16·4	13·9	100	114	80	78	66

MATERNAL MORTALITY

Maternal mortality comprises deaths certified as due to complications of pregnancy, childbirth and the puerperium. These deaths are assigned to Nos. 640–689 of the Sixth Revision (1948) of the International Classification. The structure of this section of the Classification is as follows:—

640–649.	Complications of pregnancy.
650–652.	Abortion.
660, 670–678.	Complications of delivery.
680–689.	Complications of the puerperium.

Deaths assigned to these numbers are those where the certifier indicated that

Diagram 5
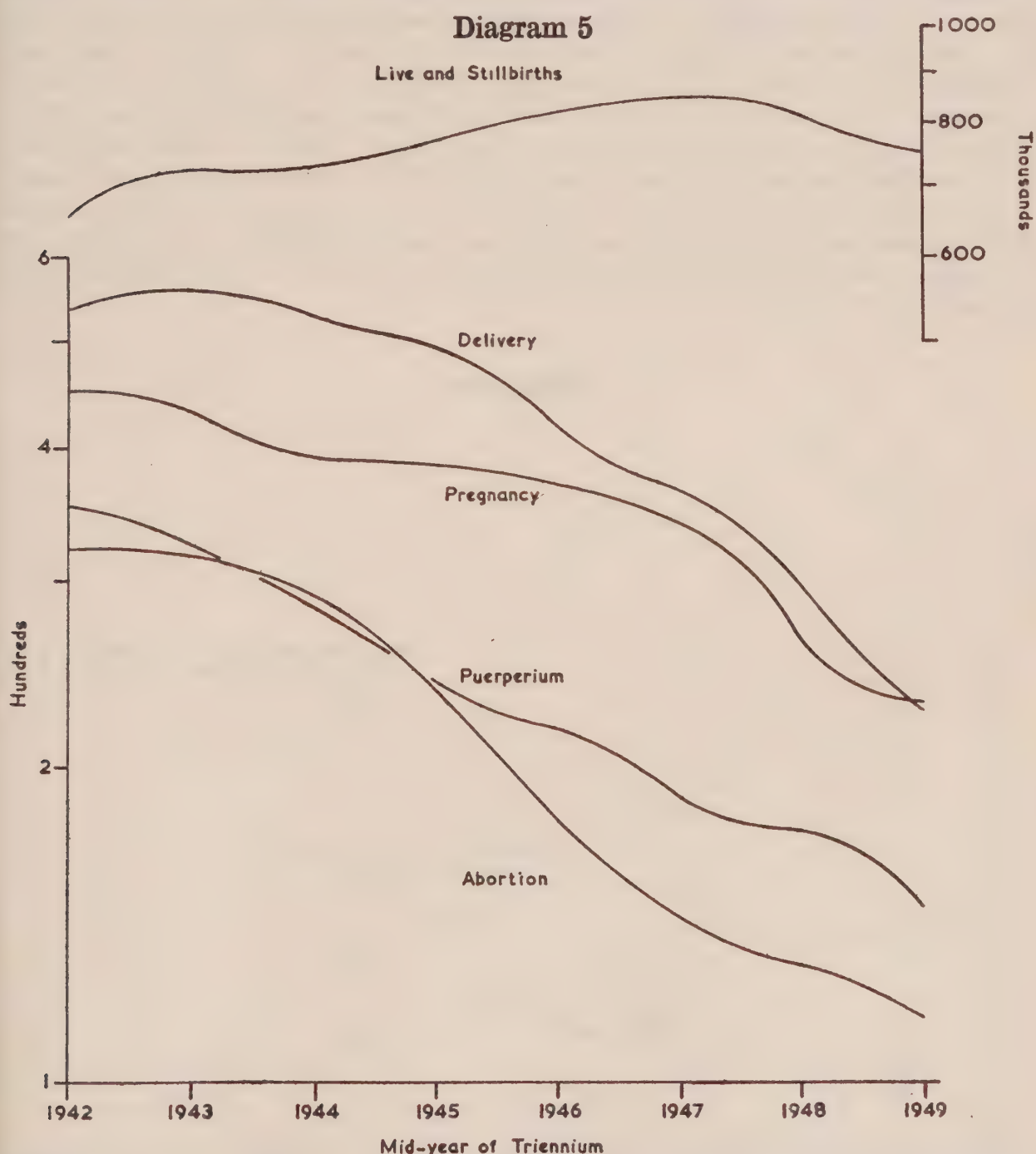
Three-yearly average of live and stillbirths, and deaths due to pregnancy, abortions, delivery and the puerperium, 1941–50.

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the maternal condition was, in his opinion, the underlying cause of death ; i.e. initiated the train of morbid events leading directly to death, whatever the age of the woman and however long the interval might have been between the occurrence of the maternal complication and death. There is, however, a further series of cases where a maternal condition is mentioned on the certificate as a contributing cause of death but when some other disease is indicated as being the underlying cause. In such cases, assignment is to the non-maternal condition, but the fact that a maternal cause has been mentioned is noted. A special secondary tabulation is made of these cases and they are described as " associated with maternal causes or with abortion ". Details of these deaths are shown in some of the tables in this chapter, but, as they have not been primarily assigned to maternal causes, they are not part of " maternal mortality " as defined above.

The denominator employed to calculate the maternal mortality rate of any year is the total number of births, live and still, occurring during the year. Rates so calculated are imperfect for a number of reasons. In the first place the number of women at risk of death from delivery or early puerperal complications is more accurately represented by the number of maternities occurring than by the number of children born, whether live or still. On the other hand, neither the number of births nor of maternities takes cognizance of the number of women at risk of death from abortion or of those who die from other complications of pregnancy without delivery occurring. Thirdly, some deaths may have occurred at an interval of many years after childbearing and cannot properly be related to the births during the current year. For these reasons, the maternal mortality rate is not an exact measure of the maternal risk; but the defects are in practice not of sufficient seriousness to merit a more exact method of calculation.

Diagram 6

Maternal mortality rates per 1,000 live and stillbirths, 1931–50.

Trends of Maternal Mortality

Table XVIII (page 54) shows the numbers of deaths due to or associated with maternal causes and also the total number of live and stillbirths in each year from 1941 to 1950. The general trend in the number of maternal deaths, as measured by the three-yearly moving average, shows that there was a general decrease which was more marked in the case of abortions and complications of delivery than in complications of either pregnancy or the puerperium. The total live and stillbirths, however, showed a general upward trend until 1947 (Diagram 5). The decrease in the number of deaths, accompanied by an increase in total live and stillbirths is reflected in the downward trend of the rates in Table XIX (page 55). The death rates from abortion and from all maternal causes in which sepsis was mentioned reached peaks in 1934 (Diagram 6); the 1950 rates were only 16 per cent and 8 per cent respectively of the 1934 rates. Death rates from toxæmia showed less improvement, the rate of 0·26 in 1950 being 30 per cent of the peak rate of 0·86 in 1934. The decrease in the rate for deaths associated with childbearing was 77 per cent and while partly due to a decrease in the general female death rate at ages 15–44, it has also been due to the greatly improved care given to the health of the expectant mother.

Diagram 7
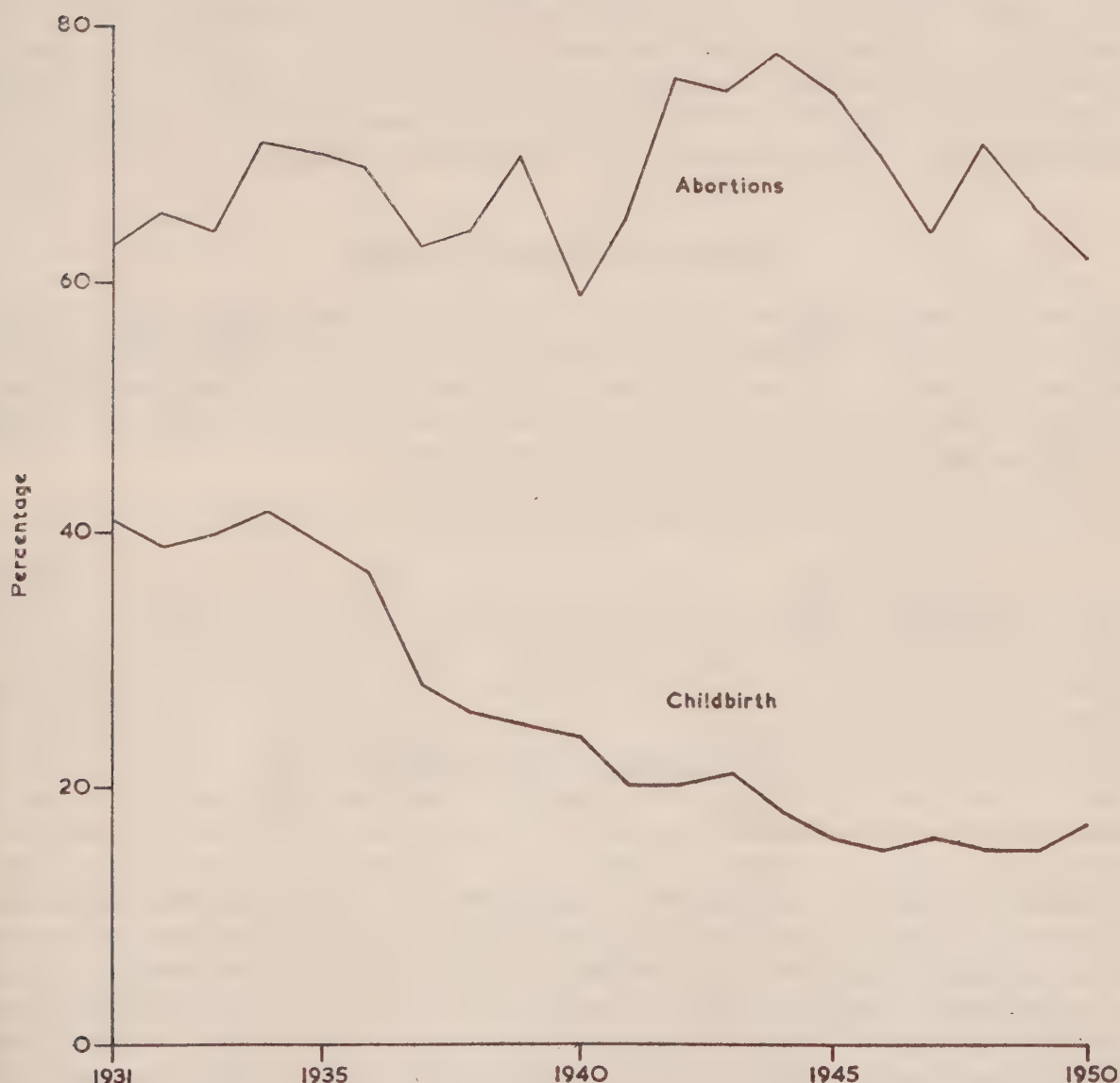
Percentage of deaths due to sepsis in deaths from childbirth (pregnancy, delivery and the puerperium) and abortion, 1931–50.

The percentage of deaths with mention of sepsis among deaths due to maternal causes excluding abortion and to abortion was as follows:—

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Maternal causes (excluding abortion)	41	39	40	42	39	37	28	26	24	24
Abortion	63	66	64	71	70	69	63	64	70	59

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Maternal causes (excluding abortion)	20	20	21	18	16	15	16	15	14	17
Abortion	65	76	75	78	75	70	62	70	66	62

While the proportion of deaths from sepsis decreased in the former there was no corresponding decrease in the case of abortions (Diagram 7).

Table XIV (page 52) distinguishes spontaneous abortions and those induced for therapeutic reasons from criminal abortions. In 1950, 103 deaths were directly attributable to abortion, 20 per cent of the maximum number of 513 which occurred in 1934. As there is no reason to believe that the incidence of abortions has declined, the decrease in deaths must derive from lessened fatality arising from abortions. The average percentages of deaths due to criminal abortions in the four quinquennia shown in the Table were 18, 24, 27 and 31. Deaths with abortion as a secondary cause averaged, in the five years 1946–50, 17 per cent of all deaths in which abortion was mentioned, whereas 24 per cent of deaths from other maternal causes were associated deaths.

Causes of Maternal Deaths

Table XX (page 56) shows maternal deaths by detailed cause, civil condition and age at death. Including abortions, 8 per cent were single women, 90 per cent married and 2 per cent widowed. The median age at death was 32 years 1 month. The proportionate distribution of deaths by civil state and by age for the four main groups of causes was as follows:—

	Civil State				Age								Median Age at Death
	Single	Married	Widowed	Total	15–	20–	25–	30–	35–	40–	45 and over	Total	
Pregnancy..	25	38	14	36	22	156	213	205	231	120	53	1,000	32yr. 8m.
Abortion ..	52	13	43	17	68	175	233	213	194	107	10	1,000	30yr. 7m.
Delivery ..	10	27	29	26	19	120	259	222	266	89	25	1,000	32yr. 4m.
Puerperium.	13	22	14	21	16	163	264	232	209	116	—	1,000	31yr. 4m.
Total ..	100	100	100	100	27	150	239	215	229	111	29	1,000	32yr. 1m.

Fifty-two per cent of the deaths of single women and 43 per cent of those of widows were due to abortion, compared with 13 per cent for married women. Complications of pregnancy caused 38 per cent of the married women's deaths but only 14 per cent of deaths of widows. The median age at death from abortion was rather less than for the remaining three causes, owing to the greater proportion of single and therefore presumably younger women who died from this cause, and also to the greater liability to abortion among low parity (and therefore younger) women.

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The numbers of live and stillbirths born to mothers at different ages are shown in Table AA of the Statistical Review for 1950, Part II, and have been used as denominators in calculating the rates in Table XV (page 52). Although in many cases the rates are based on very few deaths, they present a general picture of incidence increasing with age, especially from 35 years upwards.

Deaths *associated* with Maternal Conditions

Table XXI (page 57) analyses the principal causes of death in cases where pregnancy, abortion or childbirth were mentioned as secondary causes. By far the greatest single cause was mitral valve disease, accounting for 47 out of 201 deaths, or 23 per cent; these deaths were 34 per 1,000 of all female deaths from mitral valve disease at ages 15–49. Other heart conditions accounted for another 15 per cent of deaths at all ages, the percentage of all female deaths from the same cause at ages 15–49 varying from 0·5 per cent in the case of heart disease specified as involving coronary arteries (420·1) and hypertensive heart disease (443) to 3·3 for chronic endocarditis not specified as rheumatic (421) and 5·3 for " other unspecified disease of the heart " (434). Taking broad groupings of diseases, the percentage distribution in different age groups was as follows :—

	All ages	15—	25—	30—	35—	40 & over
Tuberculosis	6	9	6	5	9	3
Other infections and bacterial diseases	4	6	6	—	4	—
Neoplasms	6	6	4	10	2	10
Diabetes	4	3	6	8	—	—
Other allergic and endocrine	3	3	2	—	—	10
Diseases of blood	1	3	—	5	—	—
Diseases of central nervous system	4	3	—	—	4	16
Mitral valve disease	23	23	31	23	27	6
Other heart conditions	15	9	15	24	11	21
Diseases of arteries, veins, circulation	3	3	—	—	9	3
Pneumonia	5	3	2	5	11	6
Other respiratory diseases	4	—	—	5	9	6
Diseases of digestive system	9	17	10	10	4	6
Genito-urinary diseases	6	—	10	5	4	10
Congenital malformations	4	3	6	—	4	3
Violence	3	9	2	—	2	—
	100	100	100	100	100	100

Table XVI (page 53) shows that there has been a general decrease in the numbers of associated deaths, the average for 1949 and 1950 being less than half that for 1940–45 in each age group except 45 and over, where the numbers in any case were very small.

Maternal Mortality in different areas

In Table XXII (page 53) the various maternal mortality rates are compared by areas with the notification rate for puerperal pyrexia; the possibility of variations between areas in completeness of notification should be borne in mind. Among the regions, Wales had the highest death rates for maternal causes excluding abortion, but the lowest notification rate for puerperal pyrexia. The maternal sepsis rate was lowest in London and the South East, and the toxæmia rate in the Eastern region, but as regards pyrexia rates these regions ranked ninth and third respectively. The coefficient of concordance of regional ranking for the three maternal mortality rates—sepsis, toxæmia and other causes—was 0·69 which indicates a certain measure of agreement. (Complete

agreement in ranking would give a coefficient of 1). That in the ten regions mortality rates were not correlated with pyrexia notifications is shown by the following values for Spearman's rank correlation coefficient between pyrexia notification rates and rates for:—

Maternal sepsis .. .. — 0·61
Maternal toxæmia .. .. — 0·24
Other maternal causes (excluding abortion) .. + 0·04
Abortion with sepsis .. .. — 0·22
Abortion with neither toxæmia nor sepsis .. + 0·04
All maternal causes (including abortion) .. — 0·09

Hence only in the case of " other maternal causes " and " other abortions " was there some small degree of agreement in ranking order. Similarly there was little ranking correlation between maternal mortality and puerperal pyrexia rates in the conurbations, the rank correlation coefficients with puerperal pyrexia rates being as follows:—

Maternal sepsis .. .. — 0·57
Maternal toxæmia .. .. — 0·63
Other maternal causes (excluding abortion) .. + 0·37
Abortion with sepsis .. .. — 0·74
All maternal causes (including abortion) .. — 0·83

Whereas the pyrexia notification rates in the regions ranged from 2·75 in Wales to 7·62 in the North West, among the conurbations they ranged from 3·41 in West Yorkshire to 9·15 in Merseyside. If areas outside the conurbations be grouped according to the size of their population, the highest rates occurred in urban areas of more than 100,000 population, decreased with smaller populations and were lowest in rural areas. Maternal mortality rates (including abortion) however, were higher in urban areas with populations under 50,000 and in rural areas than in urban areas of 50,000 to 100,000 and 100,000 and over.

Table XVII (page 53) shows the regional rates for maternal mortality (including abortion) during 1946–50. There was a striking improvement in the Southern region over the five years (Diagram 8), the rate of 0·54 in 1950 being the lowest for all regions and only 31 per cent of that in 1946. The rate in the Eastern region was only 0·57 in 1950, but as this region had one of the three lowest rates in 1946, there was not the same scope for improvement. Rates in Wales remained persistently the highest, but there was none the less, a decrease of 31 per cent between 1946 and 1950.

Diagram 8
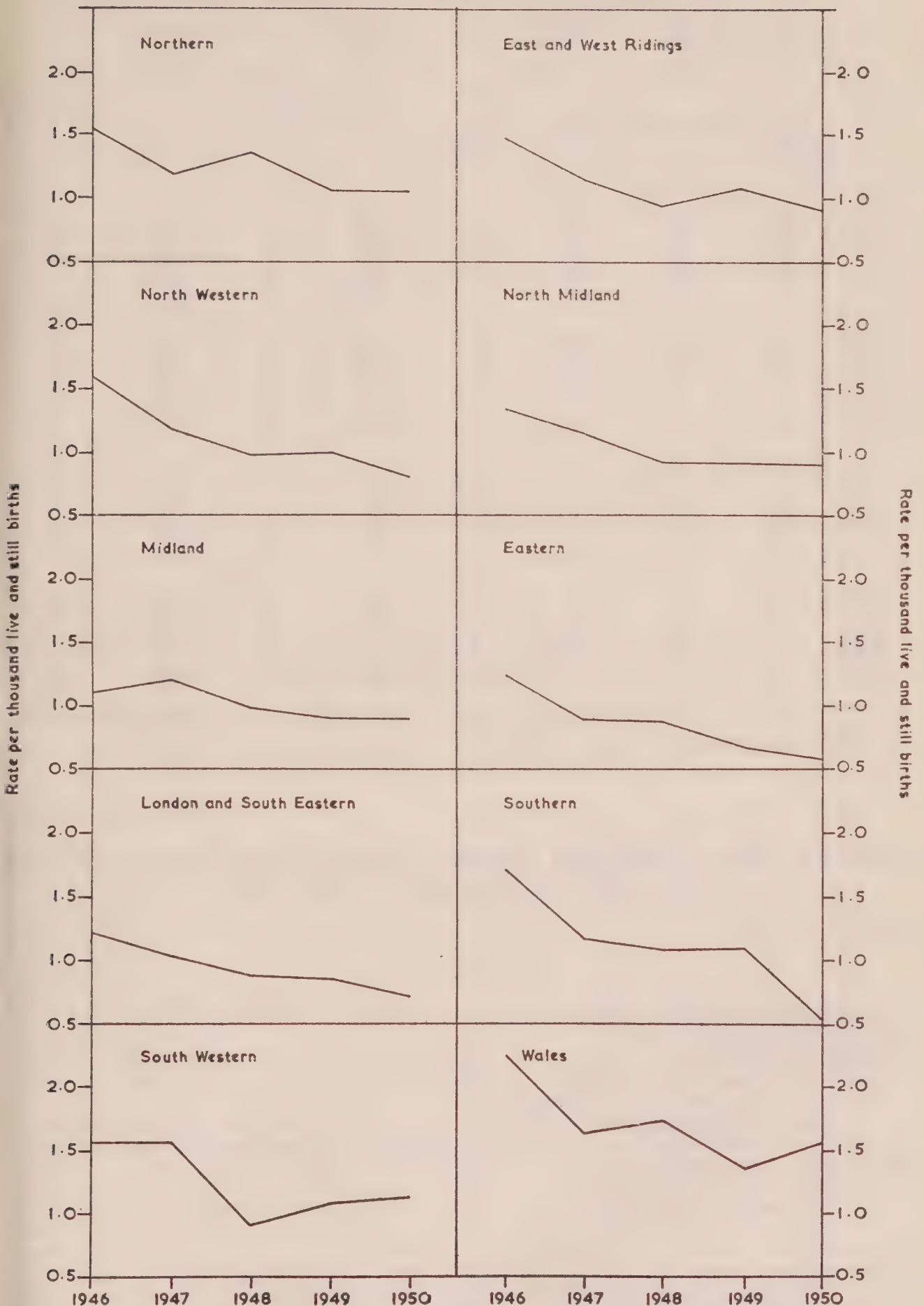
Regional rates for maternal mortality (excluding abortion) per 1,000 live and stillbirths, 1946–50.

Table XIV.—Deaths attributed to or associated with abortion, 1931 to 1950

	Spontaneous or induced for therapeutic reasons		Induced for non-therapeutic reasons		Total attributed to abortion (including criminal)	Others associated with abortion	Total attributed to or associated with abortion	Percentage of deaths due to abortion which had mention of sepsis
	With sepsis	Without sepsis	With sepsis	Without sepsis				
1931	229	140	52	27	**448**	77	**525**	*63*
1932	262	139	46	23	**470**	90	**560**	*66*
1933	257	144	56	29	**486**	97	**583**	*64*
1934	295	118	67	33	**513**	64	**577**	*71*
1935	262	108	64	30	**464**	74	**538**	*70*
1936	242	105	49	24	**420**	70	**490**	*69*
1937	176	109	56	28	**369**	104	**473**	*63*
1938	173	101	54	26	**354**	81	**435**	*64*
1939	167	79	80	28	**354**	49	**403**	*70*
1940	116	76	43	33	**268**	56	**324**	*59*
1941	145	90	66	24	**325**	47	**372**	*65*
1942	175	62	64	12	**313**	49	**362**	*76*
1943	167	64	76	15	**322**	57	**379**	*75*
1944	170	63	75	7	**315**	52	**367**	*78*
1945	110	50	65	9	**234**	19	**253**	*75*
1946	69	42	41	5	**157**	37	**194**	*70*
1947	53	48	36	3	**140**	44	**184**	*64*
1948	53	32	34	4	**123**	16	**139**	*71*
1949	58	31	20	9	**118**	19	**137**	*66*
1950	39	18	25	21*	**103**	21	**124**	*62*

* This figure includes attempted abortions, formerly classed to accidental causes.

Table XV.—Maternal Mortality (excluding Abortion): Death rates by cause and age per 1,000 total (live and still) births, 1950

	under 20	20–	25–	30–	35–	40–	45 & over	All ages
Complications of pregnancy (640–648) ..	*0·16*	0·18	0·21	0·33	0·61	1·06	*6·48*	0·32
Uncomplicated delivery (660)	—	—	*0·00*	—	*0·01*	*0·08*	*0·54*	*0·01*
Complicated delivery	*0·09*	*0·10*	0·18	0·25	0·49	*0·55*	*2·16*	0·22
(*a*) With hæmorrhage (670–672) ..	*0·06*	*0·03*	0·10	*0·09*	*0·16*	*0·20*	—	0·09
(*b*) With disproportion or prolonged labour of other origin (673–675)	—	*0·02*	*0·02*	*0·09*	*0·16*	*0·24*	*0·54*	*0·06*
(*c*) Other (676–678)	*0·03*	*0·05*	*0·06*	*0·07*	*0·16*	*0·12*	*1·62*	*0·08*
Complications of puerperium	*0·06*	0·11	0·15	0·21	0·31	*0·59*	—	0·18
(*a*) With sepsis (681, 682, 684) ..	*0·03*	*0·06*	0·10	0·16	*0·17*	*0·35*	—	*0·12*
(*b*) With toxæmia (685, 686).. ..	*0·03*	*0·05*	*0·04*	*0·04*	*0·12*	*0·08*	—	*0·05*
(*c*) Other (680, 683, 687–689) ..	—	—	*0·01*	*0·01*	*0·02*	*0·16*	—	*0·01*
Total maternal causes	*0·32*	*0·39*	*0·53*	*0·79*	1·42	2·28	*9·18*	*0·72*
(*a*) With sepsis (640, 641, 681, 682, 684)	*0·03*	*0·06*	0·11	0·18	*0·17*	*0·39*	—	0·12
(*b*) With toxæmia (642, 685, 686) ..	*0·19*	0·18	0·16	0·22	0·52	*0·71*	*6·48*	0·26
(*c*) With hæmorrhage (643, 644, 670–672)	*0·06*	*0·05*	0·12	*0·12*	*0·20*	*0·31*	—	0·11
(*d*) Other complications (Rem. of 640–648, 660–689)	*0·03*	*0·10*	0·14	0·27	0·52	0·86	*2·70*	0·23

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Table XVI.—Deaths of women not classed to pregnancy or child-bearing, but certified as associated therewith, 1940–45 (average) and 1946 to 1950

	1940–45 (average)	1946	1947	1948	1949	1950	Average of 1949 and 1950 as percentage of average of 1940–45
Associated with pregnancy (excluding abortion)	375	353	264	231	157	180	45
Associated with abortion ..	47	37	44	16	19	21	43
Total associated with pregnancy and child-bearing:—							
Age 15—	11	6	7	3	4	5	41
20—	65	53	49	41	26	29	42
25—	97	83	84	69	42	49	47
30—	108	109	75	55	49	39	41
35—	94	80	64	50	32	47	42
40—	42	55	27	26	20	19	46
45 and over	5	4	2	3	3	13	160
All ages	422	390	308	247	176	201	45

Table XVII.—Maternal Mortality (including abortion). Death rates per 1,000 live and stillbirths in Standard Regions, 1946 to 1950

	1946	1947	1948	1949	1950
England and Wales	**1·43**	**1·17**	**1·02**	**0·97**	**0·87**
Northern	1·52	1·18	1·34	1·05	1·04
East and West Ridings	1·47	1·15	0·95	1·07	0·91
North Western	1·57	1·20	0·98	1·00	0·82
North Midland	1·35	1·13	0·92	0·92	0·91
Midland	1·11	1·21	0·99	0·91	0·90
Eastern	1·25	0·89	0·87	0·69	0·57
London and South Eastern	1·21	1·03	0·89	0·85	0·71
Southern	1·72	1·14	1·08	1·09	0·54
South Western	1·58	1·57	0·91	1·09	1·12
Wales	2·26	1·63	1·73	1·36	1·55

Note : Deaths of non-civilians are excluded for years 1946 to 1949.

Table XVIII.—Numbers of Deaths from Maternal Causes and Live and Stillbirths, 1936–39 (average) and 1941 to 1950

	1936–1939* (average)	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Complications of pregnancy (640–648) ..	574	444	474	437	382	356	418	329	265	198	225
Abortion (650–652)	374	325	314	324	316	234	157	143	125	118	103
Complications of delivery (660–678)..	603	554	528	531	522	438	426	378	277	242	163
Complications of the puerperium (680–689)..	616	356	362	336	279	239	206	210	144	169	129
Total classed to childbirth	2,167	1,679	1,678	1,628	1,499	1,267	1,207	1,060	811	727	620
Associated with pregnancy	515	358	363	437	383	342	353	264	231	157	180
Associated with abortion	76	47	49	57	52	19	37	44	16	19	21
All maternal deaths	2,758	2,084	2,090	2,122	1,934	1,628	1,597	1,368	1,058	903	821
Live and still births	637,608	599,967	673,886	705,596	772,784	699,270	843,634	902,821	793,705	747,465	713,181

* The numbers of deaths for the years 1936–39 have been estimated and are therefore approximate. Deaths of non-civilians are excluded during war years.

Table XIX.—Maternal Mortality Rates per 1,000 Live and Stillbirths, distinguishing certain causes, 1931 to 1950

Year	All maternal causes (excluding abortion)					Abortion			All maternal causes (including abortion)		All maternal causes
	With sepsis	With haemorrhage	With toxaemia	Other	Associated with pregnancy	With sepsis	Other	Associated causes	With sepsis	Other	
1931 ..	1·41	0·50	0·75	0·77	1·27	0·43	0·25	0·12	1·83	2·27	**5·49**
1932 ..	1·33	0·52	0·80	0·80	0·97	0·48	0·25	0·14	1·81	2·37	**5·30**
1933 ..	1·49	0·51	0·84	0·88	1·21	0·52	0·29	0·16	2·00	2·52	**5·89**
1934 ..	1·59	0·49	0·86	0·86	1·10	0·58	0·24	0·10	2·17	2·46	**5·82**
1935 ..	1·34	0·47	0·78	0·81	1·02	0·52	0·22	0·12	1·87	2·28	**5·29**
1936 ..	1·18	0·48	0·81	0·72	0·95	0·46	0·20	0·11	1·64	2·21	**4·92**
1937 ..	0·79	0·48	0·80	0·72	1·03	0·37	0·22	0·16	1·15	2·22	**4·57**
1938 ..	0·70	0·48	0·73	0·78	0·85	0·35	0·20	0·13	1·06	2·19	**4·22**
1939 ..	0·63	0·46	0·75	0·73	0·79	0·39	0·17	0·08	1·02	2·11	**3·99**
1940 ..	0·54	0·47	0·65	0·59	0·60	0·26	0·18	0·09	0·80	1·88	**3·37**
1941 ..	0·46	0·52	0·64	0·64	0·60	0·35	0·19	0·08	0·81	1·99	**3·47**
1942 ..	0·41	0·42	0·61	0·57	0·54	0·35	0·11	0·07	0·77	1·72	**3·10**
1943 ..	0·38	0·39	0·53	0·54	0·62	0·34	0·11	0·08	0·73	1·58	**3·00**
1944 ..	0·27	0·34	0·42	0·49	0·50	0·32	0·09	0·07	0·59	1·34	**2·50**
1945 ..	0·24	0·32	0·46	0·45	0·49	0·25	0·09	*0·03*	0·49	1·32	**2·33**
1946 ..	0·18	0·29	0·43	0·34	0·42	0·13	0·06	0·04	0·31	1·12	**1·90**
1947 ..	0·16	0·23	0·35	0·28	0·29	0·10	0·06	0·05	0·26	0·92	**1·52**
1948 ..	0·13	0·20	0·31	0·22	0·29	0·11	0·05	*0·02*	0·24	0·79	**1·33**
1949 ..	0·12	0·17	0·27	0·26	0·21	0·10	0·05	*0·03*	0·22	0·75	**1·21**
1950 ..	0·12	0·11	0·26	0·23	0·25	0·09	0·05	0·03	0·21	0·66	**1·15**

Notes:—Figures for 1931 to 1938 are based on registered live and stillbirths and from 1939 onwards on occurrences. Deaths for 1931 to 1939 are based on the 5th Revision of the International List and from 1940, on the 6th Revision. Non-civilians are included throughout.

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Table XX.—Deaths of Women certified as due to pregnancy and child-bearing, by civil condition, age and cause, 1950

	Cause of Death		All Ages	Civil Condition			Age (l.b.d.)						
				Single	Married	Widowed	15–	20–	25–	30–	35–	40–	45 and over
640–648	Complications of pregnancy.	All	225	12	211	2	5	35	48	46	52	27	12
		Single	12	12	—	—	1	3	5	2	1	—	—
		Married	211	—	211	—	4	32	43	44	51	27	10
		Widowed	2	—	—	2	—	—	—	—	—	—	2
640	Pyelitis and pyelonephritis of pregnancy		5	—	5	—	—	—	2	2	—	1	
641	Other infections of genito-urinary tract during pregnancy		—	—	—	—	—	—	—	—	—	—	
642	Toxæmias of pregnancy		149	7	140	2	5	26	29	26	35	16	12
643	Placenta prævia		9	—	9	—	—	2	1	1	2	3	—
644	Other hæmorrhage of pregnancy ..		11	—	11	—	—	2	5	3	1	—	—
645	Ectopic pregnancy		36	4	32	—	—	3	10	9	13	1	—
646	Anæmia of pregnancy..		3	—	3	—	—	—	—	2	—	1	
647	Pregnancy with malposition of fœtus in uterus		—	—	—	—	—	—	—	—	—	—	—
648	Other complications arising from pregnancy		12	1	11	—	—	2	1	3	1	5	—
650–652	Abortion	All	103	25	72	6	7	18	24	22	20	11	1
		Single ..	25	25	—	—	6	7	5	3	2	2	—
		Married	72	—	72	—	1	11	17	19	17	7	—
		Widowed	6	—	—	6	—	—	2	—	1	2	1
650	Abortion without mention of sepsis or toxæmia		32	6	23	3	2	5	9	6	6	3	1
651	Abortion with sepsis		64	18	43	3	5	13	12	15	12	7	—
652	Abortion with toxæmia, without mention of sepsis		7	1	6	—	—	—	3	1	2	1	—
660	Delivery without complication.	All	5	—	4	1	—	—	1	—	1	2	1
		Married	4	—	4	—	—	—	1	—	1	1	1
		Widowed	1	—	—	1	—	—	—	—	—	1	
670–678	Delivery with specified complication.	All	158	5	150	3	3	19	41	35	42	14	4
		Single	5	5	—	—	1	2	—	—	2	—	—
		Married	150	—	150	—	2	17	41	34	40	13	3
		Widowed	3	—	—	3	—	—	—	1	—	1	1
670	Delivery complicated by placenta prævia or antepartum hæmorrhage..		24	1	22	1	—	—	6	5	12	1	—
671	Delivery complicated by retained placenta		11	—	11	—	1	2	4	3	1	—	—
672	Delivery complicated by other post-partum hæmorrhage..		27	1	25	1	1	3	13	5	1	4	—
673	Delivery complicated by abnormality of bony pelvis		2	—	2	—	—	—	—	—	1	—	1
674	Delivery complicated by disproportion or malposition of fœtus		17	1	16	—	—	1	3	4	5	4	—
675	Delivery complicated by prolonged labour of other origin		23	1	22	—	—	3	2	8	8	2	—
676	Delivery with laceration of perineum, without mention of other laceration.		1	—	1	—	—	1	—	—	—	—	—
677	Delivery with other trauma		18	—	17	1	—	4	5	2	5	1	1
678	Delivery with other complications of childbirth		35	1	34	—	1	5	8	8	9	2	2
680–689	Complications of the Puerperium.	All	129	6	121	2	2	21	34	30	27	15	—
		Single	6	6	—	—	1	2	1	2	—	—	—
		Married	121	—	121	—	1	19	32	27	27	15	—
		Widowed	2	—	—	2	—	—	1	1	—	—	—
680	Puerperal urinary infection without other sepsis		1	—	1	—	—	—	—	1	—	—	—
681	Sepsis of childbirth and the puerperium		21	1	20	—	—	3	7	5	5	1	—
682	Puerperal phlebitis and thrombosis ..		36	2	34	—	—	5	7	13	6	5	—
683	Pyrexia of unknown origin during the puerperium		—	—	—	—	—	—	—	—	—	—	
684	Puerperal pulmonary embolism ..		26	1	25	—	1	4	9	5	4	3	—
685	Puerperal eclampsia		31	1	29	1	1	7	8	4	9	2	—
686	Other forms of puerperal toxæmia ..		5	1	4	—	—	2	1	1	1	—	—
687	Cerebral hæmorrhage in the puerperium		6	—	6	—	—	—	—	1	1	4	—
688	Other and unspecified complications of the puerperium		3	—	2	1	—	—	2	—	1	—	—
689	Mastitis and other disorders of lactation		—	—	—	—	—	—	—	—	—	—	
640–648, 660–689	Deliveries and Complications of pregnancy, childbirth and the puerperium (excluding Abortion).	All	517	23	486	8	10	75	124	111	122	58	17
		Single	23	23	—	—	3	7	6	4	3	—	—
		Married	486	—	486	—	7	68	117	105	119	56	14
		Widowed	8	—	—	8	—	—	1	2	—	2	3
640–689	Deliveries and Complications of pregnancy, child-birth, and the peurperium including abortion).	All	620	48	558	14	17	93	148	133	142	69	18
		Single	48	48	—	—	9	14	11	7	5	2	—
		Married	558	—	558	—	8	79	134	124	136	63	14
		Widowed	14	—	—	14	—	—	3	2	1	4	4

Table XXI.—Deaths of Women not classed to Pregnancy or Childbearing but certified as associated therewith, 1950

Int. Classn. No.	Cause of Death	All ages	15–	20–	25–	30–	35–	40–	45 and over	Percentage of all female deaths at ages 15–49
001–008	Tuberculosis of the respiratory system	9	—	2	3	2	2	—	—	0·2
010–019	Tuberculosis, other forms	4	—	1	—	—	2	1	—	1·2
029	Syphilis, unqualified	2	—	—	2	—	—	—	—	40·0
053·1	Staphylococcal septicæmia	1	—	1	—	—	—	—	—	14·3
080	Acute poliomyelitis	3	—	1	1	—	1	—	—	1·7
092	Infectious hepatitis	1	—	—	—	—	1	—	—	2·3
140–199	Malignant neoplasms	4	—	—	1	2	—	1	—	0·1
201	Hodgkin's disease	1	—	—	—	1	—	—	—	0·9
204·1	Myeloid leukæmia	1	—	1	—	—	—	—	—	0·7
214–217	Benign neoplasm of female genital organs	5	—	1	—	1	1	2	—	3·1
231	Neoplasm of unspecified nature of mediastinum	1	—	—	1	—	—	—	—	25·0
241	Asthma	3	—	1	1	—	—	1	—	1·0
260	Diabetes mellitus	7	—	1	3	3	—	—	—	4·1
272	Diseases of pituitary gland	2	—	—	—	—	—	—	2	13·3
291	Iron deficiency anæmias (hypochromic anæmias)	2	—	—	—	2	—	—	—	12·5
297	Agranulocytosis	1	—	1	—	—	—	—	—	16·7
330–334	Vascular lesions affecting central nervous system	7	—	—	—	—	2	1	4	0·6
353·2	Status epilepticus	1	—	1	—	—	—	—	—	0·8
401	Rheumatic fever with heart involvement	3	2	—	1	—	—	—	—	2·9
410	Diseases of mitral valve	47	1	7	15	9	13	2	—	3·4
414	Endocarditis (valve unspecified) specified as rheumatic	6	—	—	2	2	1	1	—	2·6
415	Other myocarditis specified as rheumatic	1	—	—	1	—	—	—	—	1·8
416	Other heart disease specified as rheumatic	2	1	—	—	—	1	—	—	1·4
420·1	Heart disease specified as involving coronary arteries	2	—	—	1	—	1	—	—	0·5
421	Chronic endocarditis not specified as rheumatic	3	—	—	—	2	1	—	—	3·3
422	Other myocardial degeneration	6	—	—	2	2	—	2	—	1·9
430	Acute and sub-acute endocarditis	2	—	—	—	1	1	—	—	2·1
433·1	Auricular fibrillation	1	—	—	—	—	—	1	—	1·8
434	Other and unspecified diseases of heart	4	—	—	—	2	—	2	—	5·3
443	Hypertensive heart disease	1	—	—	—	—	—	1	—	0·5
452	Aneurysm of brain	1	—	—	—	—	1	—	—	2·7
460	Varicose veins of lower extremities	1	—	—	—	—	—	—	1	4·8
463	Phlebitis and thrombophlebitis of lower extremities	2	—	—	—	—	2	—	—	4·8
465	Pulmonary embolism	1	—	—	—	—	1	—	—	2·1
466	Thrombosis of uterine veins	1	—	1	—	—	—	—	—	2·6
473	Acute tonsillitis	3	—	—	—	1	2	1	—	25·0
480–483	Influenza	3	—	—	—	1	1	1	—	1·2
490	Lobar pneumonia	6	—	1	1	1	1	2	—	3·1
491	Broncho pneumonia	5	—	—	—	1	4	—	—	1·4
500–502	Bronchitis	2	—	—	—	—	1	—	1	0·7
550–553	Appendicitis	7	—	3	3	1	—	—	—	5·9
560, 561	Hernia of abdominal cavity	4	—	1	—	—	1	—	2	7·4
570·5	Intestinal obstruction without mention of hernia	5	—	1	1	2	1	—	—	12·5
572·2	Ulcerative colitis	2	1	—	1	—	—	—	—	1·5
587·2	Pancreatic cyst	1	—	—	1	—	—	—	—	50·0
592	Chronic nephritis	8	—	—	2	2	2	1	1	1·4
600·0	Pyelonephritis	1	—	—	1	—	—	—	—	1·4
605	Cystitis	2	—	—	2	—	—	—	—	22·2
609	Other diseases of urethra	1	—	—	—	—	—	—	1	—
750–759	Congenital malformations	7	—	1	3	—	2	—	1	2·1
E800–E999	Violence	5	—	3	1	—	1	—	—	0·4
	Total	201	5	29	49	39	47	19	13	
	Single	10	2	3	3	1	1	—	—	
	Married	184	3	26	45	38	44	19	9	
	Widowed	7	—	—	1	—	2	—	4	
	Associated with abortion (included above)	21	—	5	4	6	4	1	1	
	Single	2	—	2	—	—	—	—	—	
	Married	19	—	3	4	6	4	1	1	
	Widowed	—	—	—	—	—	—	—	—	

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Table XXII.—Maternal Mortality: Deaths from pregnancy, childbirth and abortion and notified cases of pyrexia per 1,000 live and stillbirths, in Standard Regions, conurbations and different classes of area outside conurbations, 1950

	Death rates per 1,000 live and stillbirths							Notified cases of pyrexia per 1,000 live and still-births
	Maternal sepsis (640, 641, 681, 682, 684)	Maternal toxæmias (642, 685, 686)	Other maternal causes (excluding abortion)	Abortion with sepsis (651)	Abortion with toxæmia (652)	Other abortion (650)	Total (640–689)	
England and Wales	0·12	0·26	0·34	0·09	0·01	0·04	0·87	5·79
Regions:								
Northern	0·12	0·28	0·44	0·14	—•	0·05	1·04	5·90
East and West Ridings ..	0·13	0·26	0·29	0·13	0·03	0·07	0·91	5·92
North Western	0·08	0·25	0·37	0·07	0·01	0·04	0·82	7·62
North Midland	0·19	0·28	0·28	0·11	0·02	0 04	0·91	4·75
Midland	0·16	0·31	0·33	0·08	—	0·03	0·90	3·80
Eastern	0·16	0·06	0·29	0·02	—	0·04	0·57	4·24
London and South Eastern	0·05	0·22	0·30	0·10	—	0·04	0·71	7·20
Southern	0·12	0·16	0·16	0·02	0·05	0·02	0·54	4·49
South Western	0·19	0·40	0·47	—	—	0·06	1·12	6·47
Wales	0·23	0·45	0·57	0·18	0·02	0·09	1·55	2·75
Conurbations	0·09	0·26	0·28	0·09	0·00	0·04	0·76	7·06
Tyneside	0·20	0·39	0·39	0·13	—	0·07	1·18	7·17
West Yorkshire	0·18	0·29	0·18	0·14	0·04	0·04	0·87	3·41
South East Lancashire ..	0·05	0·22	0·30	0·02	—	0·07	0·67	9·12
Merseyside	0·07	0·26	0·26	0·04	—	—	0·62	9·15
West Midland	0·18	0·29	0·26	0·05	—	—	0·78	4·20
Greater London	0·04	0·25	0·29	0·13	—	0·04	0·74	7·61
Areas outside conurbations ..	0·15	0·26	0·38	0·09	0·01	0·05	0·94	5·00
Urban areas with populations of 100,000 and over ..	0·11	0·21	0·30	0·10	0·02	0·02	0·77	8·47
Urban areas with populations of 50,000 and under 100,000	0·10	0·17	0·29	0·12	0·02	0·04	0·73	6·93
Urban areas with populations under 50,000	0·18	0·28	0·46	0·11	0·01	0·06	1·10	4·13
Rural areas	0·16	0·30	0·39	0·04	0·01	0·07	0·95	2·67

INFECTIOUS DISEASES

Syphilis (020–029)

The Comparative Mortality Index for the whole group of causes including locomotor ataxia, general paralysis of the insane, aortic aneurysm and other sequelæ of syphilis, has declined steadily from 2·01 in 1901–10, 1·77 in 1911–20, 1·30 in 1921–30, and 1·04 in 1931–40, to 0·50 in 1950. The actual numbers of deaths registered in the three years 1948–50 were 1,808, 1,781, 1,729. As the indices listed in Table XXIII (page 68) indicate the improvement in the mortality of males has exceeded that of females but not to the extent that the general order of the decline is different—the mortality has been more than halved since 1931 in both sexes.

The crude death rates at all ages per million for all forms of syphilis in 1950 were 57 and 23 for males and females respectively. This male excess applies only to mortality from acquired syphilis; for congenital syphilis there is, as might be expected, very little difference between the two sexes.

The improvement in the mortality from congenital syphilis since 1931 has been greater than in any other form of the disease. In 1950 there were only 45 deaths from congenital syphilis compared with 412 in 1931. The figures in the five years 1946 to 1950 were 148, 95, 89, 83, 45. Preventive measures such as the routine Wasserman testing of expectant mothers, more intensively pressed in recent years, have played an important part in this reduction. The effect of the changes in classification has been to assign fewer deaths to aortic aneurysm the mortality from which has not followed the downward trend of mortality from other syphilitic diseases. As can be seen from Table XXV (page 70) deaths from aneurysm of the aorta* reach their peak at a comparatively late age and it will therefore be some years before those syphilitics who have been affected by modern methods of treatment can reach the ages of maximum risk of death from cardiovascular forms of syphilis and before the influence of treatment on these forms can be seen. At younger ages a decline has already begun; at ages 45–54, the earliest decade in which there is a significant degree of mortality from aneurysm of the aorta, the death rates in 1950 per million were 18 for males and 5 for females compared with 31 and 10 in 1949 and 45 and 11 in 1940–45.

Table XXV to which reference has already been made gives death rates by sex and age in 1950 for the principal forms of syphilis in the country as a whole.

The death rates for all forms of syphilis in the two sexes separately and for the broad age groups 45–64 and 65 and over in 1950 are shown in Table XXIV (page 69) for the standard regions and density aggregates. That the disease is one of towns is clearly seen by the mortality gradient in the density aggregates in all the regions and in the country as a whole. Generally, as in earlier years, the highest mortality was experienced by Greater London and the South East; rates for women (but not for men) tended to be high also in the towns of the Northern region and of the East and West Ridings.

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* Deaths from aneurysm of the aorta are assigned to this group unless a non-syphilitic origin is mentioned and may obscure the trend but it is considered justifiable to make this generalisation.

Typhoid and Paratyphoid (040, 041)

For the salmonella infections classed to this group the notified cases and deaths, with the corresponding rates, from 1944 to 1950 are shown in Table XXVI (page 70). The greater availability of pathological laboratory services leading to better diagnosis and the increasing completeness of notification are factors tending to conceal any decline in morbidity which may have occurred; in fact however there has been considerable fluctuation from year to year in the annual notifications without any clear trend emerging. The sharp decline in mortality in 1949 associated with the introduction of chloramphenicol has persisted and in 1950 only 16 deaths were registered yielding a ratio of deaths to 1,000 notifications of 30 compared with 44, 48, 65, 36 in 1946, 1947, 1948 and 1949. Of the 16 deaths in 1950 there were three cases in which death was certified as due to attacks of typhoid though these attacks had taken place 36, 40 and 47 years earlier. In accordance with the 6th Revision of the International List these deaths must be assigned to typhoid though clearly they are not part of the fatality of 1950 cases, a truer value of which would therefore be 25 deaths per 1,000 cases.

Table XXVII (page 70) suggests that morbidity as measured by the notification rate, especially of paratyphoid fever, is highest in childhood and decreases with age but that fatality (deaths per 1,000 cases) is highest in older adults and increases with age.

The incidence of notified typhoid and paratyphoid fever is evenly spread over the regions with the exception of Greater London. It seems unlikely that the excess in this region can be explained by more efficient diagnostic facilities; the ratio of deaths to notifications in this region is above average, and the death rate also is above the average for the country as a whole.

Food poisoning

The International Classification rubric No. 042 " other Salmonella infections " to which 58 deaths were assigned in 1950, does not correspond to a notifiable disease; but " food poisoning ", whether suspected or confirmed, is statutorily notifiable and in Table XXIX (page 72) the notification rates are shown by sex and geographical area.

On the average the rates for the two sexes were almost equal (even before rounding) but it is of interest that a slightly higher notification rate in females than in males which has been remarked upon as a feature of London statistics (Daley 1951) was observed in all the conurbations save one; elsewhere the differences between the two sexes were not in any consistent direction.

The highest notification rates were observed in the Northern Region, East and West Ridings, and the South East Region. Over the whole country notified cases were relatively more frequent both in rural areas and in larger towns than in the small and medium sized towns. Factors which suggest themselves are the high incidence of communal feeding and higher consumption of processed meat dishes in the large towns and the hazards of longer distances of transport and longer duration of storage of food, coupled with a lack of refrigeration, associated with the rural areas.

Food poisoning was made notifiable in 1949, and 1950 was the first year for which complete national statistics were available. It is not yet possible therefore to discern whether preventive measures are becoming more effective. This group of diseases makes only a small contribution to total morbidity in comparison with that made by upper respiratory infections but the incapacity though of short duration is none the less distressing and in the very young and

very old may sometimes have fatal consequences (apart from the 58 deaths from salmonella infection already referred to, there were 12 deaths in 1950 assigned to unspecified forms of food poisoning); its prevention on the other hand is not nearly such an intractable problem as that of the common cold.

Dysentery (045–048)

Notifications and deaths from the various types of dysentery (from 1931 to 1950) are shown in Table XXX (page 73). The trend toward more complete notification of dysentery which has been the concomitant of improved pathological laboratory services has been the subject of comment in previous Reviews and is illustrated by the increased ratio of notifications to deaths in the final column of Table XXX. This ratio which was of the order of 10 in the early 'thirties, had increased tenfold by 1945, the increase being most rapid during the final years of the 1939–45 war. In 1946 and 1947 the ratio declined temporarily but in 1949 and 1950 there was a further rise and in 1950 when the prevalence of mild dysentery was exceptionally high the ratio rose to 265·7, thirty times as large as in 1931. That notification is made upon the basis of laboratory investigation rather than upon clinical assessment only is suggested by the relatively low degree of correction of diagnoses; in the years 1944 to 1950, final notifications per cent of original notifications were—97, 97, 93, 91, 93, 93, 95.

Notification and fatality rates by sex and age are shown in Table XXXI (page 74). The risk of infection is higher in the very young and very old where simple precautionary habits of hygiene have either not been inculcated or are less well observed; many of the cases are from institutional outbreaks, in residential nurseries and homes for the aged. Among young children, as is the common experience with many other infections, boys are more affected than girls and at ages 0–4 the male to female ratio of the notification rates was 1·18; among adults, the sex preponderance is reversed—at ages 15–44 for example, the male to female ratio in 1950 was 0·52 so that taking all ages together the notification rates for the two sexes appear equal—in 1950, 40 and 39 per 100,000. Fatality is however higher in males at all ages, though less consistently so at advanced ages where most of the deaths are concentrated. Over the five years 1946–50 the male to female ratios of the fatality rates were

0–	2·3
5–	1·5
15–	5·0
45–	2·1
65 and over	1·0
All ages	1·8

For all forms of dysentery, mortality has steadily declined since 1941 when the death rate rose sharply in reaction to the adverse conditions of that year. Even then when aerial bombardment and other wartime difficulties both increased the risks of infection and lowered the general resistance of the elderly the total deaths numbered only 329. The deaths from 1946 to 1949 were 121, 81, 61, 45 and in 1950 there were only 65 deaths, in spite of the very greatly increased prevalence of infection.

In Tables XXXII and XXXIII (pages 75 and 76) the notification and fatality rates are shown from 1946 to 1950 in the different regions of England and Wales; the 1950 figures are shown separately owing to the revision of the regions and density aggregates for that year. The geographical distribution of notified cases varies to some extent from year to year but since 1948 prevalence has been generally above average in the northern regions and below average in

the Midland, Eastern and Southern regions but the reverse has been true of fatality and it is clear that varying standards of notification at present render it impossible to obtain a reliable picture of the topographical distribution of infection. It can however be seen that the incidence of the disease was greater in the more densely populated areas; there is a consistent gradient in the notification rates from the larger towns down to the rural areas.

Scarlet fever, streptococcal sore throat (050, 051)

Scarlet fever and streptococcal sore throat are treated as distinct entities in the 6th revision of the International List; it is to scarlet fever only that the present notification regulations apply. It will be seen from Table XXXV (page 77) that deaths assigned to scarlet fever have dwindled from 469 in 1931 to 33 in 1950; and of those 33 deaths it is known that six were by international usage assigned to the cause because scarlet fever was mentioned on the certificate, though the onset was more than 20 years earlier, and they were not related to the cases occurring in 1950. Deaths assigned to streptococcal sore throat in 1950 numbered 61. The dramatic decline in mortality from scarlet fever is not due to a proportionate decline in attacks of infection. In 1950 there were as many notified cases of scarlet fever (65,889) as in 1940 (65,302). The notification rate fluctuates from year to year; over the last 10 years it has varied from 133 per 100,000 in 1946 to 275 in 1943. It was last exceptionally high in 1934 at 376. The decline in mortality although accelerated first by the introduction of the sulphonamides and later by penicillin, has been continuing for more than three quarters of a century and it seems that either the virulence of the disease has diminished or natural resistance has increased. Deaths assigned to scarlet fever amounted to 5·7 per 1,000 notified cases in 1931 and in 1950 the corresponding fatality was only 0·5.

Notification and fatality rates in 1950 by age and sex are shown in Table XXXIV (page 77) for scarlet fever only. Notifiable attacks were most prevalent in the age groups 3–4 and 5–9 but fatality was highest (though deaths were still rare) among the comparatively small number of adult cases. There was little difference in the experience of the two sexes, a small male excess in incidence under five years of age being followed by a female excess at older ages; on balance the total notification rate was slightly higher in males though this is without significance since in previous years there has sometimes been an overall female excess but more often the rates in the two sexes are very close to equality. There was no difference of significance in the fatality experience of the two sexes.

Notification, fatality and death rates for different geographical areas are shown in Tables XXXVI and XXXVII (pages 78 and 79) for the years 1946 to 1950. Notification rates have been consistently above average in the East and West Ridings and the North Western region and consistently below average in the Eastern region and all the regions of the South. The number of deaths is too small to draw reliable conclusions about the regional variation of fatality but on the whole there is little evidence of any consistent pattern and this at least permits the assumption that standards of notification do not differ from one part of the country to another. In general there is a gradient of urbanization, the notification rates (but not the fatality rates) being higher in the more densely populated areas.

Erysipelas (052)

Although, since the introduction of sulphonamide treatment, erysipelas has ceased to be a significant cause of death in this country, it is still an important cause of morbidity and its prevalence is of interest as an alternative index

of the contemporary volume of streptococcal infection. There is the possibility that since the disease has become much more easy to control there has been a tendency on the part of practitioners to regard notification as less necessary; certainly the figures in Table XXXVIII (page 80) show that notifications are less numerous now than before the inception of sulpha therapy, though the impetus of the reduction, whether due to this cause or to a real fall in the prevalence of the disease, seems to have spent itself. It will be noticed that the upward fluctuation in notifications in 1948–49 coincided with a similar rise in the notification rate for scarlet fever. The most striking fact is still the fall in deaths from over 800 a year in 1931–36 to a mere 41 in 1950.

As can be seen from Table XL (page 82) erysipelas is primarily a disease of older adult life. Some cases occur among young adults and even among children but most of the cases occur after the age of 45. Only 5 of the 41 deaths occurred before the age of 55 and 30 were at ages over 65.

The notification rates in different regions are shown in Table XXXIX (page 81). As for scarlet fever there is an urbanization gradient. Generally notified cases are more prevalent in the northern part of the country and less prevalent in the South; this is broadly consistent with the pattern of variation in the incidence of scarlet fever but there are deviations from exact correspondence (for example, for scarlet fever the Northern region has experienced average prevalence and the North Western region above average prevalence; for erysipelas this situation was reversed) which render it impossible to measure reliably the local incidence of one disease by reference to the other.

Diphtheria (055)

The dramatic decline in the incidence of diphtheria which has accompanied measures of immunization of infants and young children has been the subject of official comment both in the previous Annual Reviews and elsewhere (Logan, 1952). The story bears repetition partly because it is evidence of a major success of preventive medicine and partly because it provides an opportunity to remind the public that the price of this advance is the maintenance of an adequate degree of immunization in successive generations of infants. What has been banished so quickly might, but for the pursuance of this co-operative objective of widespread immunization, as quickly return.

From 1944 when original notifications were first fully corrected for revision of diagnosis, the notification rate at ages 0–14 fell from 183 per 100,000 to 7 per 100,000 in 1950; and as can be seen from Table XLI (page 82) there was a corresponding fall at ages 15 and over, from 21 to 1 per 100,000. The actual final notifications in 1944 were 23,199; in 1950 there were only 962. The death rate per million has fallen from 24 in 1944 to 1 in 1950, the actual deaths being 908 and 49 respectively. This decline is proportionate to the reduction in notified cases and it is significant that the case fatality which at ages 0–14 was indicated in 1944 by 50 deaths to every 1,000 notifications was undiminished in 1950 when the corresponding ratio was 53. There has been no waning in the virulence of the disease and the need to protect children is not less compelling because notified cases are becoming rare.

Table XLII (page 83) shows that though the statistics now relate only to sporadic cases the maximal incidence is still in early childhood, and the fatality risk is usually highest in infancy and high in the second and third years of life. In fact, however, in 1950 there were for the first time no deaths under one year of age and only 49 deaths at all ages. In 1944, only six years earlier, there were 26 deaths under 1 year and 908 deaths at all ages.

Statistics relating to the regional distribution of the disease are shown in Table XLIII (page 84). With the exception of Greater London, the final notification rates are higher in the conurbations than elsewhere. Naturally there is considerable geographical unevenness in notifications, since at the present stage of very much reduced prevalence one small outbreak in a pocket of low immunity can raise the notification rate of a whole town above the average of its neighbours. In 1950 there were 33 county boroughs (out of a total of 83) with no final notifications. Another feature of the present phase in the eradication of the disease is the considerable variation between one area and another in the proportion of original notifications which are confirmed. In view of the maintained fatality of true cases of diphtheria, practitioners have been encouraged to notify on suspicion to avoid any risk of delay in treatment; on the other hand as the true incidence of diphtheria has fallen more rapidly than the commoner conditions, such as Vincent's angina or streptococcal sore throat which are sometimes mistaken for diphtheria, hospitals have been faced with an increased proportion of suspected cases and have tended more and more to await laboratory confirmation of diagnosis. It is not surprising that in some towns hardly any of the original notifications are confirmed; it is evidence both of the favourable trend of diphtheria morbidity and of commendable vigilance in spite of that trend.

Whooping cough (056)

Whooping cough still retains its importance as a hazard of childhood though happily modern chemotherapy has not only reduced the risk of death to very small proportions but has also reduced the seriousness and extent of the distressing and often damaging paroxysms which give the disease its name. In 1950 there were 157,781 final notifications, more than in any year since 1944; despite the high prevalence of the disease there were however only 394 deaths (one occurred after an interval from onset of 5 years) compared with 527 in the previous year and at ages 0–14 the ratio of deaths to notifications was halved. The fatality of whooping cough has been falling for many years partly as a result of the improved resistance of children as a result of generally raised standards of hygiene and nutrition and partly as a consequence of the improved methods of controlling those secondary infections which have constituted the main danger of the common fevers of childhood. The death rate at ages under 15 for whooping cough in 1950 was 41 per million compared with an average of 223 in 1931–35.

As can be seen from Table XLIV (page 85) the sex and age pattern differs little if at all from one year to another. Notifications (per 1,000) are maximal in the age group 3–4; in 1950 two thirds of the cases occurred before age 5. In 1950 as in previous years the notification rates for females exceeded those for males at all ages but these differences were small and of little importance to the control of the disease since they can hardly indicate a major ætiological factor. As always, fatality was highest in the first year of life; of the 394 deaths in 1950, 277 occurred in this age period and a further 61 occurred in the second year of life.

The regional distribution of the disease is shown in Table XLV (page 86). There is an urbanization gradient in the notification rate which is higher in conurbations and large towns than in the smaller towns and rural areas, though this may partly reflect a case-finding differential. The notification rates and the ratios of deaths to notifications were higher in the regions of the North than in those of the South, including Greater London. The notification rate in Wales was much lower than the average for the country as a whole but the high ratio of deaths to notifications, taken together with the fact that the death rate per million living was little different from that of the country as a whole, suggests a considerable degree of under-notification.

Meningococcal infections (057)

There were 1,149 final notifications of meningococcal infections and 283 deaths in 1950. As can be seen from Table XLVII (page 87), the abnormally high prevalence that, not unexpectedly, accompanied the crowding and restricted ventilation of the early years of the war was succeeded, as conditions improved, by a gradual return toward the pre-war level, though no exact comparison is possible owing to the likelihood that standards of diagnosis and reporting may have changed in the intervening years. The ratio of final to original notifications had fallen persistently since 1944, when the proportion was 77 per cent, down to 58 per cent in 1949, but in 1950 there was a rise to 66 per cent possibly as a result of the change in the notification regulation in that year which had the effect of making the reporting rather more inclusive than the previous requirement which was restricted specifically to cerebro-spinal fever. The 1950 figures were a little higher than those of 1949 (942 cases, 288 deaths) and appeared to fit into a rising phase of the irregular upward and downward variation in prevalence which has been, in peace conditions, a normal part of the epidemiology of the disease. The case fatality is high, of the order of 25 per cent of cases, and has persisted at that level in recent years, despite advances in antibiotic treatment, owing to the fact that in many cases the rapid progress of the disease restricts the opportunity for effective intervention; nevertheless the case fatality is lower now than in years preceding the war when two thirds of the victims died. The majority of the deaths are in very young children; in 1950, 208 of the 283 deaths were of children under 5 years of age and 103 were in the first year of life. Apart from those who die there is a further large proportion of cases where the disease leaves a legacy of serious disability.

Acute Poliomyelitis (080, 081)

Prior to 1947 the number of cases of poliomyelitis notified each year rarely exceeded a thousand but in that year there were 9,335 original and 7,766 final notifications and the subsequent experience of very high prevalence again in 1949 and 1950 has made it clear that England and Wales is following Scandinavia, Australasia and North America in having to face periodical epidemics of the disease in place of the lower and less fluctuating prevalence of endemic character. In 1950 there were 7,752 final notifications with 755 deaths, a case fatality of 10 per cent. This fatality is lower than in pre-epidemic times; in 1944 for example 21 per cent of notified cases were fatal but the epidemic outbreak in 1947 undoubtedly increased public anxiety and raised the intensity of case finding and it is likely that from that time a greater proportion of the milder and almost symptomless cases have been brought to the notice of practitioners and have been notified. In 1950 for the first time notifying practitioners were asked to distinguish between paralytic and non-paralytic cases; one third of the notifications were of non-paralytic cases.

The notification rates are shown by sex and age in Table XLIX (page 89). Following the first epidemic in 1947, in which larger proportions of adults were affected, the age distribution of cases in both 1949 and 1950 reverted to that which had prevailed in earlier years—in 1950 35 per cent of cases were under 5 years of age. Clearly there is liable to be some carry over of immunity from one epidemic to another and the age distributions of successive epidemics are likely to be correlated. It seems probable that a stable age pattern will not emerge unless the epidemic rhythm itself stabilizes and it is too early yet to discern such a trend. It is however generally true that children and very young adults are most vulnerable to attack; and that a higher proportion of infantile and of adult cases are more serious, i.e. either paralytic or fatal, than of children

over one year of age. Babies might be expected to present least resistance; in adults the disease more often takes the more serious bulbar form.

In examining geographical distribution of the disease it is necessary to take account of the different timing of epidemics in different parts of the country, of the possibility of carry over of immunity from one outbreak to another and of the likelihood that over a period of time, though not necessarily in each epidemic, every area would experience the same average prevalence, those that suffered badly in one year escaping high epidemicity in another. For this purpose therefore Table L (page 89) combines the four years 1947–50. It has been ascertained (Benjamin and Logan, 1953) that the mean prevalence over the four years was significantly above the national average in the Midland, London and South Eastern, Southern and South Western Regions and below average in the Northern, North Western, Eastern and Wales Regions. Over the four years the highest death rates were experienced in the Southern and South Western Regions.

The original notifications in the county boroughs and administrative counties of England and Wales have been tabulated by quarters for the period 1947–50 and in each quarter have been compared with expected numbers on the basis of the notification rates for England and Wales as a whole. These figures are shown in Table LI (page 90). A + sign indicates a statistically significant excess over expectation, and a − sign a significant deficiency. These figures which indicate a very uneven geographical distribution of the prevalence of poliomyelitis in England and Wales during 1947 to 1950, have been subjected to fairly exhaustive analysis (Benjamin and Logan, 1953) without the reasons for the variation becoming apparent. It is clear that there has been a tendency for some areas to suffer successions of years with higher than average prevalence and for other areas to experience successive years with lower than average prevalence and on balance there are some areas of the country which, within the period studied, had significantly higher prevalence than others. This differential incidence did not appear upon examination to be associated with social conditions as measured by such indices as the proportion employed in unskilled occupations or housing density (persons per dwelling), nor was there any apparent urbanization trend.

Over the four years 1947–50 the average death rate from poliomyelitis in England and Wales was 14 per million, compared with an average in 1943–46 of 3 per million. Of the 755 deaths in 1950, 278 were specified as from the bulbar form or from polioencephalitis; 21 were from late effects.

Acute Infectious Encephalitis (082, 083)

There were 365 deaths in 1950 from acute infectious encephalitis (including 250 from late effects). The number of deaths from this condition has been falling steadily since 1931, apart from a temporary wartime rise in 1940–41, though the pace of the decline in the last two or three years has been much slower than in earlier years. The numbers of cases notified bears no relationship to the number of deaths registered many of which are never notified. Since so much depends upon adequate laboratory investigations the diagnosis of conditions in this group has not yet reached a satisfactory level of reliability. In 1950 the notification regulations were amended in order to require the separation of (a) infective and (b) post-infectious types. This change by drawing attention to the regulations had the indirect effect of improving the completeness of notification. In 1950 there were 186 final notifications of the infective type and 67 final notifications of post-infectious encephalitis, i.e. following or accompanying infectious diseases (measles, mumps, chickenpox,

have so far been the most common diseases mentioned but the necessary supplementary information available is, as yet, scanty). Deaths in this latter group, of which there were only a small number, are assigned under the 6th Revision to the primary infectious disease and are not included in the deaths from encephalitis shown in Table LIII (page 110).

It will be seen from Table LV (page 112) that the deaths were well spread over all ages; this spread arises mainly from the fact that two thirds of the deaths follow, from late effects, many years after the onset of acute disease. Of the 115 deaths from acute disease, 44 occurred before the age of 5 years, the remainder being spread over all age groups.

Table LIV (page 111) shows the regional distribution of mortality in 1950. The numbers are small and no significant differences emerge.

Measles (085)

Although there were 367,725 final notifications of measles in 1950, there were only 221 deaths. As recently as in 1940 there were 857 deaths and ten years earlier in 1930 there were 4,188 deaths. A number of factors have conspired to remove measles to a place of insignificance among causes of death; the mildness of the disease itself, the improved general health and resistance of children and more efficient prevention of secondary infection, or control of such infection when it does intervene, by antibiotics.

As can be seen from Table LVI (page 112) the normal pattern was followed in 1950 of a slight female excess in the first year of life, no appreciable sex difference between 1 and 10 years, and a female excess thereafter; i.e. the average age of reported attack is later in females than in males. In total rather more males than females suffer notifiable attacks. Of the 221 deaths, 133 were of males; 70 were in the first year of life, and 49 in the second. In examining the regional distribution of Table LVIII (page 114) it must be borne in mind that the epidemic rhythm is not the same in all areas nor at present, because of the continuing effect of disturbances in the birth rate and redistribution of population in housing development, constant in any one area. In some towns biennial epidemics are the rule, with very minor prevalence in the intervening years; in other towns regular annual epidemics occur; and some areas seem to be in a transitional stage between the two. The disease is nearly always most epidemic in the winter months (December and January are commonly the months of rapid spread) and a great deal seems to depend upon whether in a particular locality the susceptibles are exhausted before the refractory period of the following Autumn. The Autumnal refractory period which has never been fully explained is the one almost universal feature (Butler, 1946). There was in 1950 a slight urban gradient in notifications; perhaps in rural areas slightly more recognizable attacks escape notification. On the whole the Southern Regions had lower, and the Northern Regions higher prevalence than elsewhere.

Infectious diseases generally

This review omits any reference to a number of infectious diseases such as chickenpox, rubella and mumps because they are very rarely fatal and though a large proportion of the child population are attacked, the volume of morbidity is not measurable, except by special survey, because the diseases are not notifiable. Other infectious diseases, for example cholera, typhus, anthrax and smallpox, receive no mention because subject to continued vigilance their occurrence is rare in the extreme.

A glance at Table V (page 24) reminds us that as a result of all the gratifying advances of preventive and curative medicine, diseases in the infective and

parasitic group apart from tuberculosis no longer appear among the important causes of death in childhood; and tuberculosis, though by no means to be discounted as a serious problem, is not the killer it was in earlier years. In 1901–10 the Comparative Mortality Index for typhoid and paratyphoid was 23·84 in 1950 0·09; in 1901–10 the Comparative Mortality Index for all forms of tuberculosis was 2·70, in 1950 0·59; in 1901–10 the four diseases, scarlet fever, diphtheria, whooping cough and measles produced a combined death rate per million at ages under 15 of 2,572; in 1950 this was reduced to 68.

Table XXIII.—Syphilis and diseases of syphilitic origin: Death rates per million living and Comparative Mortality Indices, by sex, 1931 to 1950

Year	Death rate per million living										C.M.I.* (1938 base)	
	Tabes Dorsalis		G.P.I.		Aneurysm of Aorta		Congenital syphilis		Other and unspecified		All forms	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1931	23	4	44	11	38	10	10	8	35	13	1·26	1·03
1932	26	5	40	10	37	10	9	7	30	13	1·18	1·02
1933	24	5	36	10	35	12	7	6	33	13	1·13	1·06
1934	20	4	36	10	37	12	6	5	33	11	1·09	0·97
1935	22	4	33	10	38	13	6	4	35	11	1·09	0·98
1936	20	4	30	10	40	14	6	4	32	12	1·03	0·98
1937	18	4	27	11	38	16	5	3	34	13	0·98	1·04
1938	18	4	28	9	38	16	4	3	37	13	1·00	1·00
1939	18	4	28	8	35	14	4	3	35	13	0·96	0·97
1940	17	4	28	9	34	13	4	3	32	13	0·92	0·90
1941	15	4	29	9	33	13	4	4	31	12	0·89	0·89
1942	12	3	25	8	32	13	4	3	32	12	0·84	0·80
1943	12	3	21	7	30	14	5	4	29	12	0·77	0·82
1944	11	2	18	6	28	15	4	3	25	11	0·70	0·76
1945	11	2	16	6	29	12	3	4	23	9	0·65	0·66
1946	9	2	16	6	32	13	4	3	23	9	0·64	0·67
1947	8	2	14	5	33	15	2	2	20	8	0·58	0·64
1948	5	1	10	3	31	14	2	2	20	8	0·51	0·56
1949	5	1	8	3	32	15	2	2	19	8	0·50	0·55
1949†	6	1	8	3	25	8	2	2	22	8	0·48	0·48
1950†	5	1	5	2	20	10	1	1	25	9	0·44	0·50

* Based on civilian deaths from 1st January, 1940, in the case of males, and from 1st June, 1941, in the case of females, until the 31st December, 1949.

† According to the 6th (1948) Revision of the International List.

Table XXIV.—Syphilis: Death rates per million living by sex and age in Standard Regions and Density Aggregates, 1950

Area	Ages 45–64 M.	F.	Ages 65 and over M.	F.
ENGLAND AND WALES ...	**118**	**37**	**264**	**95**
Conurbations ...	**130**	**43**	**346**	**106**
Areas outside conurbations	110	34	221	89
Urban areas with populations of 100,000 and over	156	52	348	116
Urban areas with populations of 50,000 and under 100,000	130	31	268	112
Urban areas with populations under 50,000	103	32	228	87
Rural areas ...	79	22	120	64
NORTH				
Regions:				
Northern ...	132	47	206	116
East and West Ridings	121	49	242	136
North Western ...	96	35	171	80
Total	113	42	200	104
Conurbations:				
Tyneside ...	215	58	278	43
West Yorkshire ...	109	66	250	121
South East Lancashire	104	42	243	97
Merseyside ...	122	18	216	76
Total	124	46	244	94
Areas outside conurbations:				
Urban areas with populations of 100,000 and over	155	48	295	163
Urban areas with populations of 50,000 and under 100,000	130	21	220	119
Urban areas with populations under 50,000	73	36	121	119
Rural areas ...	90	44	84	49
MIDLANDS AND EASTERN				
Regions:				
North Midland ...	106	31	217	80
Midland ...	91	36	204	45
Eastern ...	119	21	185	80
Total	103	30	202	67
MIDLANDS AND EASTERN (*contd.*)				
Conurbation:				
West Midland ...	109	26	259	34
Areas outside conurbation:				
Urban areas with populations of 100,000 and over	143	60	329	107
Urban areas with populations of 50,000 and under 100,000	120	40	233	60
Urban areas with populations under 50,000	90	24	224	60
Rural areas ...	75	14	99	71
GREATER LONDON ...	141	46	447	131
SOUTH				
Regions:				
Remainder of South East	137	26	417	111
Southern ...	128	31	295	112
South Western ...	96	33	240	76
Total	119	30	315	99
Urban areas with populations of 100,000 and over	140	35	464	94
Urban areas with populations of 50,000 and under 100,000	138	33	339	134
Urban areas with populations under 50,000	132	34	390	103
Rural areas ...	81	20	163	73
WALES				
Regions:				
Wales I and II ...	129	37	150	32
Urban areas with populations of 100,000 and over	239	85	222	86
Urban areas with populations of 50,000 and under 100,000	143	—	—	—
Urban areas with populations under 50,000	119	27	170	14
Rural areas ...	51	10	98	22

Table XXV.—Syphilis: Death rates per million living for component causes by sex at ages. 1950

Age	Locomotor Ataxia		G.P.I.		Aneurysm of Aorta		Congenital Syphilis		Other and unspecified		All forms of Syphilis	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0– ...	—	—	—	0	0	—	4	3	0	—	4	3
15– ...	—	—	—	—	0	—	0	0	1	0	1	1
25– ...	0	—	2	1	1	—	1	1	3	2	7	3
35– ...	0	—	3	2	4	2	1	1	9	3	17	7
45– ...	4	2	9	6	18	5	—	0	33	14	64	26
55– ...	17	3	26	8	61	17	0	—	87	24	192	52
65 and over	26	4	9	4	118	58	—	—	112	30	264	95
All Ages ...	5	1	5	2	20	10	1	1	25	9	57	23

Table XXVI.—Typhoid and Paratyphoid Fevers: Corrected notifications* and deaths, and notification and death rates per million living, 1944 to 1950

	1944	1945	1946	1947	1948	1949	1950
Deaths	54	47	54	34	48	32	16
Death rate per million living...	1	1	1	1	1	1	0
Notifications	542	535	1,229	706	742	893	529
Notification rate per million living	13	13	29	16	17	20	12

* Including cases in Port Health Districts which are uncorrected.

Table XXVII.—Typhoid and Paratyphoid Fevers: Death and notification rates per million living, and deaths per 1,000 notifications, by sex and age, 1946–50 (average)

	Males				Females			
	0–	15–	45 and over	All ages	0–	15–	45 and over	All ages
Typhoid Fever								
Death rate per million living ...	0	1	1	1	0	1	1	1
Notification* rate per million living...	10	8	4	7	8	9	6	8
Deaths per 1,000 notifications* ...	43	106	213	104	26	61	136	73
Paratyphoid Fever								
Death rate per million living ...	0	0	0	0	0	0	0	0
Notification* rate per million living...	24	8	3	10	26	11	5	12
Deaths per 1,000 notifications* ...	5	8	129	18	7	13	71	19

* Corrected.

Table XXVIII.—Typhoid and Paratyphoid Fevers: Notification, fatality and death rates in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 100,000 living	Deaths per 1,000 notifications	Death rate per million living
ENGLAND AND WALES	1·1	32	0·4
Conurbations	1·4	39	0·5
Areas outside conurbations	1·0	26	0·3
Urban areas with populations of 100,000 and over	0·7	68	0·5
Urban areas with populations of 50,000 and under 100,000	0·8	37	0·3
Urban areas with populations under 50,000	1·1	—	—
Rural areas	1·2	31	0·4
NORTH			
Regions:			
Northern	0·9	—	—
East and West Ridings	0·7	67	0·5
North Western	0·7	43	0·3
Total	0·8	38	0·3
Conurbations:			
Tyneside	1·1	—	—
West Yorkshire	0·7	83	0·6
South East Lancashire	0·6	71	0·4
Merseyside	1·3	—	—
Total	0·8	38	0·3
Areas outside conurbations:			
Urban areas with populations of 100,000 and over	?	?	1·2
Urban areas with populations of 50,000 and under 100,000	?	?	—
Urban areas with populations under 50,000	?	?	—
Rural areas	?	?	—
MIDLANDS AND EASTERN			
Regions:			
North Midland	0·9	—	—
Midland	0·8	—	—
Eastern	1·4	23	0·3
Total	1·0	9	0·1
MIDLANDS AND EASTERN (contd.)			
Conurbation:			
West Midland	0·7	—	—
Areas outside conurbation:			
Urban areas with populations of 100,000 and over	?	?	—
Urban areas with populations of 50,000 and under 100,000	?	?	—
Urban areas with populations under 50,000	?	?	—
Rural areas	?	?	0·3
GREATER LONDON	1·9	43	0·8
SOUTH			
Regions:			
Remainder of South East	1·0	77	0·8
Southern	1·9	20	0·4
South Western	0·9	—	—
Total	1·3	29	0·4
Urban areas with populations of 100,000 and over	?	?	0·7
Urban areas with populations of 50,000 and under 100,000	?	?	0·9
Urban areas with populations under 50,000	?	?	—
Rural areas	?	?	0·3
WALES			
Regions:			
Wales I and II	0·8	50	0·4
Urban areas with populations of 100,000 and over	?	?	—
Urban areas with populations of 50,000 and under 100,000	?	?	—
Urban areas with populations under 50,000	?	?	—
Rural areas	?	?	1·3

Table XXIX.—Food Poisoning: Notification rates per 100,000 living by sex in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 100,000 living	
	Males	Females
ENGLAND AND WALES	**17**	**17**
Conurbations	**14**	**16**
Areas outside conurbations	**18**	**18**
Urban areas with populations of 100,000 and over	19	18
Urban areas with populations of 50,000 and under 100,000	12	11
Urban areas with populations under 50,000 ...	14	15
Rural areas	25	25
NORTH		
Regions:		
Northern	25	22
East and West Ridings	21	24
North Western...	11	13
Total	17	18
Conurbations:		
Tyneside	17	21
West Yorkshire	11	9
South East Lancashire	12	13
Merseyside	7	10
Total	11	12
MIDLANDS AND EASTERN		
Regions:		
North Midland...	12	10
Midland...	12	14
Eastern	19	14
Total	14	13
Conurbation:		
West Midland	11	14
GREATER LONDON	17	20
SOUTH		
Regions:		
Remainder of South East	28	26
Southern	14	13
South Western...	20	20
Total	20	20
WALES		
Regions:		
Wales I and II	13	16

Table XXX.—Dysentery: Notifications and deaths, and ratio of notifications to deaths, 1931 to 1950

Year	Number of notifications†	Number of deaths				Ratio of notifications to deaths (all forms)
		Amœbiasis	Bacillary dysentery	Other and unspecified forms of dysentery	All forms	
1931	836	8	40	47	95	8·8
1932	924	2	46	61	109	8·5
1933	783	5	37	33	75	10·4
1934	763	7	37	41	85	9·0
1935	1,177	8	55	32	95	12·4
1936	1,333	6	43	23	72	18·5
1937	4,167	6	61	44	111	37·5
1938	4,170	10	62	40	112	37·2
1939	1,941	10	63	23	96	20·2
1940	2,860	4	142	39	185	15·5
1941	6,670	15	244	70	329	20·3
1942	7,296	8	130	60	198	36·8
1943	7,905	6	88	30	124	63·8
1944	(a) 13,346 (b) 13,000	9	102	46	157	82·8
1945	(a) 16,774 (b) 16,247	11	113	41	165	98·5
1946	(a) 8,459 (b) 7,870	17	55	49	121	65·0
1947	(a) 4,168 (b) 3,761	16	48	17	81	46·4
1948	(a) 5,496 (b) 5,084	11	34	16	61	83·3
1949	(a) 4,875 (b) 4,519	8	25	7	40	113·0
1949*	(a) 4,875 (b) 4,519	13	25	7	45	100·4
1950*	(a) 18,230 (b) 17,271	17	43	5	65	265·7

* Deaths according to 6th (1948) Revision of the International List.

† (a) Original ; (b) Corrected, excluding cases in Port Health Districts. Up to 1943, figures are partially corrected.

Table XXXI.—Dysentery: Notification rates per 100,000 living and deaths per 1,000 notifications by sex and age, 1944 to 1950

Age	1944 M.	1944 F.	1945 M.	1945 F.	1946 M.	1946 F.	1947 M.	1947 F.	1948 M.	1948 F.	1949 M.	1949 F.	1949* M.	1949* F.	1950* M.	1950* F.
								Notifications per 100,000 living								
0–	131	107	144	115	57	48	26	21	55	48	53	49	53	49	231	196
5–	51	43	58	54	25	24	7	5	18	17	18	15	18	15	72	67
15–	21	22	27	32	13	15	6	6	5	7	4	6	4	6	13	25
45–	11	15	17	21	12	13	9	10	5	6	3	5	3	5	8	12
65 and over	23	33	30	33	14	20	11	11	7	10	3	8	3	8	12	14
All ages	**32**	**30**	**38**	**38**	**18**	**19**	**9**	**8**	**12**	**12**	**10**	**11**	**10**	**11**	**40**	**39**
								Deaths per 1,000 notifications								
0–	17	12	14	9	21	13	38	11	10	5	7	3	7	3	1	2
5–	3	6	5	1	4	2	5	8	6	2	4	—	4	—	1	1
15–	8	3	9	2	26	2	32	9	23	3	21	7	26	9	7	1
45–	22	22	13	15	27	4	23	17	36	32	26	11	33	11	31	5
65 and over	43	28	36	38	34	48	19	37	14	33	63	22	78	22	47	35
All ages	**13**	**11**	**12**	**8**	**21**	**10**	**27**	**16**	**14**	**10**	**12**	**6**	**13**	**7**	**5**	**3**

* Deaths according to 6th (1948) Revision of the International List.

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Table XXXII.—Dysentery: Notification rates per 100,000 living, deaths per 1,000 notifications and corrected notifications per 1,000 original in Standard Regions, 1946 to 1949 (Non-civilians excluded)

Area	Corrected notifications per 100,000 living				Deaths per 1,000 corrected notifications				Corrected notifications per 1,000 original notifications			
	1946	1947	1948	1949	1946	1947	1948	1949	1946	1947	1948	1949
ENGLAND AND WALES	**19**	**9**	**12**	**10**	**15**	**21**	**12**	**9**	**935**	**911**	**928**	**931**
Northern	13	3	5	13	18	42	24	3	1,005	889	727	878
East and West Ridings	10	7	22	10	31	29	6	8	982	996	1,000	985
North Western	22	13	20	25	25	16	8	4	907	863	901	937
North Midland	45	2	4	3	6	63	43	11	975	920	944	940
Midland	17	5	6	9	17	20	4	3	898	852	969	938
Eastern	18	10	12	8	12	7	8	17	988	973	997	1,008
London and South Eastern	21	10	13	7	10	26	13	18	901	873	914	866
Southern	8	25	10	7	26	10	24	12	956	982	969	965
South Western	11	10	4	6	13	25	39	6	983	993	948	994
Wales	12	4	9	12	20	22	13	23	942	874	892	959

Table XXXIII.—Dysentery : Notification rates per 100,000 living, deaths per 1,000 notifications and corrected notifications per 1,000 original in Standard Regions and Density Aggregates, 1950

Area	Corrected notifications per 100,000 living	Deaths per 1,000 corrected notifications	Corrected notifications per 1,000 original
ENGLAND AND WALES	**39**	**4**	**948**
Conurbations	**46**	**3**	**941**
Areas outside conurbations	**35**	**4**	**955**
Urban areas with populations of 100,000 and over	64	2	895
Urban areas with populations of 50,000 and under 100,000	42	4	1,011
Urban areas with populations under 50,000	30	6	1,000
Rural areas	18	7	987
NORTH			
Regions:			
Northern	90	2	989
East and West Ridings	94	2	1,001
North Western	60	4	959
Total	77	3	982
Conurbations:			
Tyneside	112	2	918
West Yorkshire	114	2	1,000
South East Lancashire	85	1	958
Merseyside	28	13	809
Total	84	2	952

Area	Corrected notifications per 100,000 living	Deaths per 1,000 corrected notifications	Corrected notifications per 1,000 original
MIDLANDS AND EASTERN			
Regions:			
North Midland	46	4	766
Midland	22	4	926
Eastern	12	20	862
Total	26	6	826
Conurbation:			
West Midland	18	—	820
GREATER LONDON	24	5	938
SOUTH			
Regions:			
Remainder of South East	9	8	1,000
Southern	8	14	929
South Western	16	—	1,034
Total	12	5	1,000
WALES			
Regions:			
Wales I and II	33	3	991

Table XXXIV.—Scarlet Fever and Streptococcal Sore Throat: Notification* rates per 100,000 living and deaths per 1,000 notifications by sex and age, 1950

Age	Scarlet Fever and Streptococcal Sore Throat		Scarlet Fever only			
	Deaths per 1,000 notifications		Notifications per 100,000 living		Deaths per 1,000 notifications	
	Males	Females	Males	Females	Males	Females
0–	37·6	—	37	37	—	—
1–	0·7	1·3	364	326	0·4	0·4
3–	0·4	0·5	1,050	1,005	—	0·1
5–	0·6	0·1	1,022	1,116	0·2	0·1
10–	0·3	—	226	298	—	—
15 and over ...	12·7	16·2	15	11	4·0	6·9
All ages ...	**1·6**	**1·3**	**156**	**145**	**0·5**	**0·5**

* Fully corrected Scarlet Fever notifications, excluding cases in Port Health Districts.
Note: Cases of streptococcal sore throat are excluded from the fatality rates as the disease is not notifiable.

Table XXXV.—Scarlet Fever (excluding streptococcal sore throat): Notification rates per 100,000 living, deaths and death rates per 1,000 notifications, 1931 to 1950

Year	Notification rate per 100,000 living*	Number of deaths†	Deaths per 1,000 cases notified
1931	204	469	5·7
1932	212	461	5·4
1933	321	635	4·9
1934	376	838	5·5
1935	296	499	4·1
1936	257	440	4·2
1937	233	305	3·2
1938	241	311	3·1
1939	188	181	2·3
1940	156	154	2·4
1941	142	133	2·2
1942	203	104	1·2
1943	275	134	1·2
1944	218	107	1·2
1945	173	84	1·1
1946	133	43	0·8
1947	135	42	0·7
1948	172	37	0·5
1949	161	18	0·3
1949	161	27	0·4
1950	150	33	0·5

* Corrected notifications from 1944, excluding cases in Port Health Districts.
† The figures shown below the line for 1949 and 1950 include deaths occurring one or more years after onset of the disease.

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Table XXXVI.—Scarlet Fever: Notification, fatality and death rates at ages 0–14 years in Standard Regions, 1946 to 1949

Area	Notifications per 100,000 living				Deaths per 1,000 notifications				Death rate per million population			
	1946	1947	1948	1949	1946	1947	1948	1949	1946	1947	1948	1949
ENGLAND AND WALES	**555**	**547**	**721**	**696**	**0·61**	**0·62**	**0·34**	**0·20**	**3·39**	**3·39**	**2·47**	**1·37**
Northern	535	616	759	521	1·34	1·14	0·55	0·26	7·15	7·02	4·17	1·37
East and West Ridings	622	703	1,054	895	0·56	0·32	0·11	0·49	3·50	2·27	1·12	4·38
North Western	649	655	966	935	0·94	0·45	0·30	0·15	6·08	2·94	2·90	1·42
North Midland	569	491	716	837	0·99	0·84	—	0·63	5·65	4·12	—	5·31
Midland	574	662	822	618	0·18	0·77	0·24	0·16	1·04	5·07	1·99	0·98
Eastern	367	371	459	564	—	0·86	0·34	—	—	3·20	1·55	—
London and South Eastern	581	535	580	683	0·42	0·61	0·39	0·07	2·44	3·25	2·27	0·45
Southern	402	294	379	428	0·48	—	0·48	—	1·94	—	1·80	—
South Western	402	311	408	490	0·84	0·53	0·39	—	3·39	1·65	1·61	—
Wales	618	561	900	661	0·29	0·63	0·98	—	1·80	3·56	8·80	—

Table XXXVII.—Scarlet Fever: Notification, fatality and death rates at ages 0–14 years, in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 100,000 living	Deaths per 1,000 notifications	Death rate per million living
ENGLAND AND WALES	**637**	**0·47**	**0·30**
Conurbations	**691**	**0·28**	**0·19**
Areas outside conurbations	**603**	**0·61**	**0·37**
Urban areas with populations of 100,000 and over	717	0·41	0·30
Urban areas with populations of 50,000 and under 100,000	622	0·91	0·57
Urban areas with populations under 50,000	595	0·56	0·33
Rural areas	524	0·73	0·38
NORTH Regions:			
Northern	551	1·24	0·68
East and West Ridings	679	0·48	0·33
North Western	740	0·95	0·07
Total	677	0·43	0·29
Conurbations:			
Tyneside	626	0·82	0·52
West Yorkshire	691	—	—
South East Lancashire	841	0·46	0·38
Merseyside	634	—	—
Total	723	0·29	0·21
Areas outside conurbations:			
Urban areas with populations of 100,000 and over	?	?	0·25
Urban areas with populations of 50,000 and under 100,000	?	?	—
Urban areas with populations under 50,000	?	?	0·63
Rural areas	?	?	0·25
MIDLANDS AND EASTERN Regions:			
North Midland	641	0·41	0·26
Midland	543	—	—
Eastern	640	1·39	0·89
Total	600	0·54	0·32
MIDLANDS AND EASTERN (*contd.*)			
Conurbation:			
West Midland	525	0·36	0·19
Areas outside conurbation:			
Urban areas with populations of 100,000 and over	?	?	—
Urban areas with populations of 50,000 and under 100,000	?	?	0·82
Urban areas with populations under 50,000	??	?	
Rural areas	?	?	0·43
GREATER LONDON	717	0·24	0·18
SOUTH Regions:			
Remainder of South East	571	0·63	0·36
Southern	516	—	—
South Western	538	1·73	0·93
Total	541	0·83	0·45
Urban areas with populations of 100,000 and over	?	?	0·31
Urban areas with populations of 50,000 and under 100,000	??	?	0·43
Urban areas with populations under 50,000	?	?	0·17
Rural areas	?	?	0·32
WALES Regions:			
Wales I and II	642	1·07	0·68
Urban areas with populations of 100,000 and over	?	?	1·42
Urban areas with populations of 50,000 and under 100,000	?	?	7·69
Urban areas with populations under 50,000	??	?	0·78
Rural areas	??	?	0·57

Table XXXVIII.—Erysipelas: Notifications, deaths, and deaths per 1,000 notifications, 1931 to 1950

Year				Number of notifications*	Number of deaths	Deaths per 1,000 cases notified
1931	...	...	...	15,245	820	53·8
1932	...	...	...	14,527	808	55·6
1933	...	...	...	17,997	973	54·1
1934	...	...	...	20,643	1,192	57·7
1935	...	...	...	16,926	867	51·2
1936	...	...	...	16,487	817	49·6
1937	...	...	...	15,166	485	32·0
1938	...	...	...	16,671	342	20·5
1939	...	...	...	14,141	248	17·5
1940	...	...	...	13,123	214	16·3
1941	...	...	...	12,232	190	15·5
1942	...	...	...	11,598	141	12·2
1943	...	...	...	11,833	124	10·5
1944	...	...	...	11,148	119	10·7
1945	...	...	...	9,853	119	12·1
1946	...	...	...	9,069	82	9·0
1947	...	...	...	7,845	61	7·8
1948	...	...	...	9,120	51	5·6
1949	...	...	...	8,270	54	6·5
1950	...	...	...	7,650	41	5·4

* Corrected notifications from 1944, except in Port Health Districts.

Table XXXIX.—Erysipelas: Notification rates per 100,000 living in Standard Regions, 1946 to 1949, and in Standard Regions and Density Aggregates, 1950

Region	Notification rate per 100,000 living			
	1946	1947	1948	1949
ENGLAND AND WALES	**22·2**	**18·7**	**21·3**	**19·2**
Regional Summary:				
Northern...	29·1	24·0	27·1	21·8
East and West Ridings	25·3	20·6	25·6	25·5
North Western	22·1	18·1	21·4	19·1
North Midland	21·7	15·5	21·6	19·7
Midland	21·2	18·2	24·6	20·4
Eastern	19·5	17·8	17·4	15·6
London and South Eastern	23·2	20·1	20·3	17·6
Southern	19·2	16·4	17·3	15·2
South Western	19·1	17·9	17·9	19·4
Wales	16·0	13·9	17·5	17·5

Notification rates per 100,000 living, 1950 :—

Area	Rate	Area	Rate
ENGLAND AND WALES	**17·4**	**MIDLANDS AND EASTERN**	
Conurbations	**17·4**	Regions:	
Areas outside conurbations ...	**17·5**	North Midland...	17·4
Urban areas with populations of		Midland...	15·5
100,000 and over	20·6	Eastern	18·0
Urban areas with populations of		Total	16·8
50,000 and under 100,000 ...	19·0		
Urban areas with populations		**Conurbation:**	
under 50,000	17·2	West Midland	16·6
Rural areas	14·9		
		GREATER LONDON	16·3
NORTH			
Regions:		**SOUTH**	
Northern...	19·1	Regions :	
East and West Ridings ...	24·0	Remainder of South East ...	17·9
North Western	16·8	Southern	14·1
Total	19·5	South Western...	18·5
		Total	16·9
Conurbations:			
Tyneside	19·3	**WALES**	
West Yorkshire	25·4	Regions:	
South East Lancashire... ...	16·4	Wales I and II...	14·8
Merseyside	16·4		
Total	19·2		

Table XL.—Erysipelas: Notification rates per 100,000 living, and deaths per 1,000 notifications by sex and age, 1950

Age	Notifications* per 100,000 living		Deaths per 1,000 notifications*	
	Males	Females	Males	Females
0–	2	2	—	—
5–	4	4	—	—
15–	10	13	1	1
45–	30	35	3	2
65 and over	35	35	20	16
All ages	**15**	**19**	**6**	**5**

* Corrected figures, excluding cases in Port Health Districts.

Table XLI.—Diphtheria: Notification rates per 100,000 living and deaths per 1,000 notifications at ages 0–14 and 15 and over, 1944 to 1950

Year	Notifications* per 100,000 living		Deaths per 1,000 notifications*	
	0–14	15 and over	0–14	15 and over
1944	183	21	50	19
1945	146	17	46	24
1946	91	12	44	31
1947	42	5	54	21
1948	26	3	55	20
1949	14	2	51	31
1950	7	1	53	46

* Corrected figures, excluding cases in Port Health Districts.

Table XLII.—Diphtheria: Notification rates per 100,000 living and deaths per 1,000 notifications by sex and age, 1944 to 1950

Age	1944 M.	1944 F.	1945 M.	1945 F.	1946 M.	1946 F.	1947 M.	1947 F.	1948 M.	1948 F.	1949 M.	1949 F.	1950 M.	1950 F.
						Notifications* per 100,000 living								
0–	48	33	30	25	28	18	12	8	7	5	5	3	3	2
1–	122	102	91	75	72	54	42	28	21	17	12	10	9	5
3–	234	228	188	172	118	108	64	53	40	34	21	19	10	7
5–	248	265	201	221	123	124	58	56	34	37	18	17	9	7
10–	143	173	113	138	68	90	26	38	19	25	11	13	4	6
15 and over	15	27	13	20	9	14	4	6	2	4	1	2	1	1
All ages	**50**	**58**	**41**	**46**	**26**	**30**	**12**	**13**	**8**	**9**	**4**	**5**	**2**	**2**
						Deaths per 1,000 notifications*								
0–	*113*	*63*	*112*	*72*	*130*	*164*	*167*	*200*	*143*	*111*	*50*	*91*	*—*	*—*
1–	*80*	*109*	*101*	*108*	*93*	*109*	*72*	*110*	*120*	*71*	*61*	*122*	*70*	*81*
3–	*68*	*89*	*61*	*59*	*52*	*72*	*58*	*65*	*59*	*64*	*113*	*75*	*74*	*93*
5–	*48*	*46*	*43*	*43*	*32*	*40*	*50*	*50*	*46*	*62*	*40*	*28*	*51*	*37*
10–	*28*	*19*	*25*	*18*	*22*	*11*	*35*	*18*	*34*	*15*	*7*	*28*	*65*	*12*
15 and over	*23*	*17*	*30*	*20*	*34*	*29*	*26*	*18*	*19*	*20*	*56*	*19*	*85*	*25*
All ages	**44**	**37**	**44**	**25**	**41**	**38**	**49**	**39**	**49**	**39**	**52**	**38**	**66**	**37**

* Corrected figures, excluding cases in Port Health Districts.

Table XLIII.—Diphtheria : Notification, fatality and death rates at ages 0–14 years and corrected notifications per 100 original at all ages. Standard Regions and density aggregates, 1950

Area	Ages 0–14 years — Notification rate per 100,000 living	Ages 0–14 years — Death rate per 1,000 notifications	Ages 0–14 years — Death rate per million living	All ages — Corrected notifications per 100 original
ENGLAND AND WALES	6·8	53	3·6	34
Conurbations	9·4	58	5·5	29
Areas outside conurbations	5·2	48	2·5	42
Urban areas with populations of 100,000 and over	5·4	42	2·3	43
Urban areas with populations of 50,000 and under 100,000	5·5	51	2·8	31
Urban areas with populations under 50,000	5·8	57	3·3	44
Rural areas	4·3	38	1·6	46
NORTH				
Regions:				
Northern	16·3	59	9·6	43
East and West Ridings	6·4	34	2·2	33
North Western	10·4	81	8·4	26
Total	10·6	64	6·8	31
Conurbations:				
Tyneside	8·8	176	15·5	33
West Yorkshire	5·3	53	2·8	41
South East Lancashire	7·7	150	11·5	24
Merseyside	24·8	34	8·5	25
Total	11·5	80	9·1	27
Areas outside conurbations:				
Urban areas with populations of 100,000 and over	?	?	5·1	?
Urban areas with populations of 50,000 and under 100,000	?	?	4·0	?
Urban areas with populations under 50,000	?	?	4·7	?
Rural areas	?	?	5·0	?
MIDLANDS AND EASTERN				
Regions:				
North Midland	1·2	111	1·3	23
Midland	13·8	21	2·9	42
Eastern	1·9	77	1·5	68
Total	6·7	30	2·0	41
MIDLANDS AND EASTERN (*contd.*)				
Conurbation:				
West Midland	20·1	9	1·9	36
Areas outside conurbation:				
Urban areas with populations of 100,000 and over	?	?	2·2	?
Urban areas with populations of 50,000 and under 100,000	?	?	4·1	?
Urban areas with populations under 50,000	?	?	3·3	?
Rural areas	?	?		? ?
GREATER LONDON	4·4	79	3·5	25
SOUTH				
Regions:				
Remainder of South East	1·6	222	3·6	67
Southern	1·2	33	1·6	58
South Western	4·7	65	1·7	41
Total	2·6	?	—	47
Urban areas with populations of 100,000 and over	?	?	—	?
Urban areas with populations of 50,000 and under 100,000	?	?	—	?
Urban areas with populations under 50,000	?	?	3·4	? ?
Rural areas	?	?	1·6	? ?
WALES				
Regions:				
Wales I and II	7·4	—	—	43
Urban areas with populations of 100,000 and over	?	?	—	?
Urban areas with populations of 50,000 and under 100,000	?	?	—	?
Urban areas with populations under 50,000	?	?		? ?
Rural areas	?	?		? ?

Table XLIV.—Whooping Cough: Notification rates per 1,000 living and deaths per 1,000 notifications by sex and age, 1944 to 1950

Age	1944		1945		1946		1947		1948		1949		1950	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Notifications* per 1,000 living														
0–	14·5	15·1	9·4	10·0	12·8	14·1	12·2	13·2	18·3	20·0	12·9	13·8	18·5	19·0
1–	19·4	22·0	12·7	14·4	18·5	20·8	16·8	19·1	25·3	27·9	17·2	19·5	24·3	27·6
3–	20·7	24·1	14·2	16·5	21·0	24·7	18·9	22·6	29·5	34·8	20·2	24·0	30·0	35·4
5–	9·8	11·2	6·0	7·0	8·6	10·0	9·0	10·3	14·0	16·0	9·4	11·0	15·7	18·1
10–	0·8	1·0	0·5	0·6	0·6	0·8	0·6	0·7	0·8	1·0	0·6	0·8	0·7	0·9
15 and over	0·0	0·1	0·0	0·0	0·0	0·1	0·0	0·1	0·0	0·1	0·0	0·1	0·0	0·1
All ages	**2·2**	**2·3**	**1·4**	**1·5**	**2·1**	**2·2**	**2·1**	**2·2**	**3·3**	**3·4**	**2·3**	**2·4**	**3·5**	**3·7**
Deaths per 1,000 notifications*														
0–	62·6	72·1	58·2	64·9	52·4	56·1	46·9	54·9	31·6	33·0	37·1	36·1	18·3	24·0
1–	9·4	13·0	9·1	14·1	6·7	10·3	9·8	12·8	4·0	6·6	2·8	5·8	1·6	2·5
3–	0·9	3·0	1·7	3·4	1·7	2·1	1·2	2·2	1·0	0·6	0·7	1·0	0·3	0·8
5–	0·9	1·1	0·7	1·5	0·2	0·6	0·2	1·3	0·1	0·2	0·6	0·3	0·2	0·1
10–	0·9	—	1·4	—	1·2	1·0	—	—	—	—	—	—	—	—
15 and over	2·5	1·6	—	1·3	2·9	3·3	—	2·0	3·4	1·9	—	1·8	1·9	1·4
All ages	**10·3**	**12·0**	**9·9**	**12·0**	**8·1**	**9·3**	**8·8**	**10·6**	**4·8**	**5·4**	**4·9**	**5·3**	**2·2**	**2·8**

* Corrected figures, excluding cases in Port Health Districts.

Table XLV.—Whooping Cough: Notification, fatality and death rates at ages 0–14 years in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 100,000 living	Deaths per 1,000 notifications	Death rate per million living
ENGLAND AND WALES ...	**1,617**	**2·5**	**41**
Conurbations ...	**1,826**	**2·6**	**48**
Areas outside conurbations ...	**1,489**	**2·4**	**36**
Urban areas with populations of 100,000 and over ...	1,773	2·3	41
Urban areas with populations of 50,000 and under 100,000 ...	1,492	2·5	37
Urban areas with populations under 50,000 ...	1,386	2·9	40
Rural areas ...	1,403	2·0	28
NORTH			
Regions:			
Northern ...	1,502	3·9	59
East and West Ridings ...	2,101	2·9	61
North Western ...	1,763	3·3	58
Total ...	1,802	3·3	59
Conurbations:			
Tyneside ...	1,513	4·4	67
West Yorkshire ...	2,186	3·0	65
South East Lancashire ...	1,942	3·7	71
Merseyside ...	1,748	3·9	68
Total ...	1,897	3·6	68
Areas outside conurbations:			
Urban areas with populations of 100,000 and over ...	?	?	56
Urban areas with populations of 50,000 and under 100,000 ...	?	?	48
Urban areas with populations under 50,000 ...	?	?	58
Rural areas ...	?	?	33
MIDLANDS AND EASTERN			
Regions:			
North Midland ...	1,589	3·3	52
Midland ...	1,492	2·7	40
Eastern ...	1,875	0·8	15
Total ...	1,626	2·3	37
MIDLANDS AND EASTERN (*contd.*)			
Conurbation:			
West Midland ...	1,900	2·9	55
Areas outside conurbations:			
Urban areas with populations of 100,000 and over ...	?	?	40
Urban areas with populations of 50,000 and under 100,000 ...	?	?	29
Urban areas with populations under 50,000 ...	?	?	37
Rural areas ...	?	?	22
GREATER LONDON ...	1,744	1·6	29
SOUTH			
Regions:			
Remainder of South East ...	1,285	1·1	14
Southern ...	1,281	2·6	33
South Western ...	1,727	1·8	31
Total ...	1,444	1·8	26
Urban areas with populations of 100,000 and over ...	?	?	28
Urban areas with populations of 50,000 and under 100,000 ...	?	?	30
Urban areas with populations under 50,000 ...	?	?	20
Rural areas ...	?	?	30
WALES			
Regions:			
Wales I and II ...	763	5·2	39
Urban areas with populations of 100,000 and over ...	?	?	35
Urban areas with populations of 50,000 and under 100,000 ...	?	?	—
Urban areas with populations under 50,000 ...	?	?	55
Rural areas ...	?	?	23

Table XLVI.—Whooping Cough: Notification rates per 100,000 living and deaths per 1,000 notifications, at ages 0–14 and 15 and over, 1944 to 1950

Year	Notifications* per 100,000 living		Deaths per 1,000 notifications*	
	0–14	15 and over	0–14	15 and over
1944	1,065	5	11·4	1·8
1945	705	3	11·2	1·0
1946	1,043	4	8·8	3·2
1947	1,002	4	9·9	1·5
1948	1,547	6	5·2	2·4
1949	1,066	4	5·2	1·3
1950	1,617	6	2·5	1·5

* Corrected notifications, excluding cases in Port Health Districts.

Table XLVII.—Meningococcal Infections : Notifications and deaths, 1931 to 1950

Year	Number of notifications (partially corrected)	Number of deaths	Year	Number of notifications (a) original (b) corrected†	Number of deaths
1931	2,216	1,446	1944 ...	(a) 2,982 (b) 2,306	592
1932	2,136	1,218	1945 ...	(a) 2,739 (b) 2,060	555
1933	1,695	946			
1934	1,094	732	1946 ...	(a) 2,673 (b) 2,010	509
1935	883	619	1947 ...	(a) 3,146 (b) 2,282	534
1936	994	638			
1937	1,140	701	1948 ...	(a) 2,024 (b) 1,216	300
1938	1,288	655	1949 ...	(a) 1,619 (b) 942	288
1939	1,500	517			
1940	12,771	2,584	1950 ...	(a) 1,747 (b) 1,149	283
1941	11,077	2,163			
1942	6,029	1,206			
1943	3,303	780			

† Corrected notifications (1944–1950) exclude cases in Port Health Districts.

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Table XLVIII.—Acute Poliomyelitis: Notifications, deaths, corrected notifications per 100 original and deaths per 100 notifications, 1931 to 1950

Year	Number of notifications*	Number of deaths	Corrected notifications per 100 original notifications	Deaths per 100 notifications
1931... ...	396	99	—	25
1932... ...	750	179	—	24
1933... ...	797	203	—	25
1934... ...	671	136	—	20
1935... ...	700	146	—	21
1936... ...	583	103	—	18
1937... ...	863	153	—	18
1938... ...	1,585	256	—	16
1939... ...	832	143	—	17
1940... ...	1,079	161	—	15
1941... ...	959	160	—	17
1942... ...	674	132	—	20
1943... ...	456	90	—	20
1944... ...	(a) 590 (b) 526	109	89	(a) 18 (b) 21
1945... ...	(a) 904 (b) 853	139	94	(a) 15 (b) 16
1946... ...	(a) 755 (b) 673	128	89	(a) 17 (b) 19
1947... ...	(a) 9,335 (b) 7,766	707	83	(a) 8 (b) 9
1948... ...	(a) 2,246 (b) 1,848	241	82	(a) 11 (b) 13
1949... ...	(a) 6,975 (b) 5,967	657	86	(a) 9 (b) 11
1950... ...	(a) 8,774 (b) 7,752	755	88	(a) 9 (b) 10

* (a) Original; (b) corrected notifications, excluding cases in Port Health Districts. Up to 1943 figures are partially corrected.

Table XLIX.—Acute Poliomyelitis: Notification rates per 100,000 living and deaths per 100 cases by sex and age, 1950

| Age | Notification* rate per 100,000 living | | | | | | Deaths per 100 notifications* | |
| | Paralytic | | Non-paralytic | | Total | | | |
	M.	F.	M.	F.	M.	F.	M.	F.
0– ...	39	34	7	3	46	38	17	16
1– ...	70	69	16	12	86	81	6	4
3– ...	55	54	26	16	81	70	5	4
5– ...	40	34	25	13	66	47	5	7
10– ...	21	19	15	10	35	29	6	6
15– ...	14	13	6	6	20	19	15	15
25 and over.	4	3	1	1	5	4	24	18
All ages ...	**14**	**12**	**6**	**4**	**20**	**16**	**10**	**9**

* Corrected notifications, excluding cases in Port Health Districts.

Table L.—Acute Poliomyelitis : Notification, Fatality and Death rates in Standard Regions for the combined years 1947 to 1950

Area	Death rate per million living	Notification rate per 100,000 living	Deaths per 100 notifications
ENGLAND AND WALES ...	**14**	**13**	**10**
Northern	13	13	10
East and West Ridings	14	14	10
North Western	11	9	12
North Midland	15	14	10
Midland	15	15	10
Eastern	14	13	11
London and South Eastern ...	13	14	9
Southern	16	16	10
South Western	17	18	10
Wales	10	11	9

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Table LI.—Acute Poliomyelitis: Actual original notifications compared with numbers expected, significant differences (plus or minus), and actual numbers per cent. of numbers expected in each County Borough and Administrative County in England and Wales, by quarters, 1947–1950

(Figures for 1947–1949 exclude non-civilians.)

(A) COUNTY BOROUGHS.

Year	Quarter	BARNSLEY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BARROW-IN-FURNESS Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BATH Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BIRKENHEAD Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0.2		—	—	0.2		—	—	0.2		—	—	0.4		—
	2	2	0.5	+	400	23	0.5	+	4,600	—	0.5		—	—	1.0		—
	3	12	11.4		105	6	10.2		59	11	11.7		94	22	21.3		103
	4	3	4.2		71	—	3.8		—	7	4.4		159	6	7.9		76
1948	1	—	0.8		—	—	0.7		—	1	0.8		125	3	1.4		214
	2	—	0.5		—	—	0.4		—	1	0.5		200	—	0.9		—
	3	4	1.4	++	286	—	1.2		—	1	1.4		71	2	2.5		80
	4	8	1.3	++	615	—	1.2		—	4	1.4		286	6	2.5	+	240
1949	1	1	0.4		250	—	0.4		—	—	0.4		—	1	0.8		125
	2	1	0.5		200	—	0.5		—	1	0.5	+	200	1	1.0		100
	3	9	5.5	+	164	2	4.9	−	41	11	5.6	+	196	5	10.2		49
	4	23	5.8	++	397	5	5.2		96	9	5.9		153	1	10.8	−	93
1950	1	3	0.9	++	333	2	0.8		250	—	0.9		—	—	1.7		—
	2	4	1.3	++	308	—	1.1		—	—	1.3		—	—	2.3		—
	3	5	9.1		55	—	8.1		—	4	9.3		43	5	17.0	−	29
	4	8	4.1		195	—	3.7		—	8	4.2		190	10	7.7		130

Year	Quarter	BIRMINGHAM Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BLACKBURN Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BLACKPOOL Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BOLTON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	10	3.1	+	323	—	0.3		—	—	0.4		—	—	0.5		—
	2	10	7.7		130	—	0.8		—	—	1.0		—	1	1.2		83
	3	205	167.2	+	123	1	16.9	−	6	8	22.6	−	35	14	25.4		55
	4	78	66.2		118	1	6.3	−	16	6	8.4		71	29	9.4	+	309
1948	1	24	11.4	++	211	—	1.1		—	1	1.5		67	1	1.7		59
	2	12	6.7		179	1	0.7		143	—	0.9		—	—	1.0		—
	3	26	19.9	+	131	2	2.0		100	2	2.7		74	1	3.0		33
	4	18	19.6		92	—	2.0		—	1	2.7		37	—	3.0		—
1949	1	9	6.3		143	—	0.6		—	—	0.9		—	—	1.0		—
	2	4	7.5	−	53	1	0.8		125	—	1.0		—	—	1.1		—
	3	50	80.4	−	62	1	8.1	−	12	6	10.9		55	3	12.2		25
	4	60	84.5		71	8	8.6		93	3	11.4	−	26	10	12.8		78
1950	1	28	13.1	+++	214	—	1.3		—	—	1.8		—	—	2.0		—
	2	154	18.5	++	832	—	1.9		—	1	2.5		40	1	2.8		36
	3	287	133.4	+	215	3	13.5		22	6	18.0	−	33	3	20.2	−	15
	4	85	60.4		141	2	6.1		33								

Table LI.—continued.

BOOTLE — BOURNEMOUTH — BRADFORD — BRIGHTON

Year	Quarter	BOOTLE Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BOURNEMOUTH Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BRADFORD Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BRIGHTON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·2		—	—	0·4		—	1	0·8		125	1	0·4		250
	2	—	0·5		—	1	1·0		100	4	2·0		200	3	1·1		273
	3	2	10·5		19	12	20·9		57	72	43·8	+	164	17	23·5		72
	4	3	3·9		77	4	7·8		51	13	16·3		80	8	8·7		92
1948	1	1	0·7		143	—	1·4		—	6	3·0		200	1	1·6		63
	2	—	0·4		—	—	0·8		—	1	1·8		56	—	0·9		—
	3	2	1·3		154	1	2·5		40	—	5·2	−	—	—	2·8		—
	4	1	1·2		83	2	2·5		80	—	5·1	−	—	1	2·8		36
1949	1	1	0·4		250	—	0·8		—	—	1·7		—	—	0·9		—
	2	—	0·5		—	1	0·9		111	1	2·0		50	2	1·1		182
	3	10	5·1	+	196	7	10·0		70	16	21·1		76	11	11·3		97
	4	1	5·3		19	20	10·6	+	189	15	22·2		68	28	11·9	+	235
1950	1	—	0·8		—	2	1·6		125	4	3·4		118	2	1·8		111
	2	—	1·2		—	2	2·3		87	8	4·8		167	5	2·6		192
	3	4	8·4		48	31	16·7	+	186	22	35·0	−	63	11	18·7		59
	4	1	3·8		26	3	7·5		40	14	15·8		89	3	8·5		35

BRISTOL — BURNLEY — BURTON UPON TRENT — BURY

Year	Quarter	BRISTOL Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BURNLEY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BURTON UPON TRENT Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BURY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	2	1·2		167	—	0·2		—	1	0·1	+	1,000	—	0·2		—
	2	3	3·0		100	—	0·6		—	1	0·3		333	—	0·4		—
	3	61	66·3		92	2	12·8	−	16	7	7·4		95	9	8·8		102
	4	26	24·7		105	—	4·8		—	—	2·8		—	4	3·3		121
1948	1	6	4·5		133	—	0·9		—	4	0·5	+	800	—	0·6		—
	2	6	2·7		222	—	0·5		—	—	0·3		—	—	0·4		—
	3	18	7·9	++	228	1	1·5		67	—	0·9		—	—	1·1		—
	4	16	7·8	++	205	1	1·5		67	—	0·9		—	1	1·0		100
1949	1	9	2·5	+	360	—	0·5		—	—	0·3		—	—	0·3		—
	2	6	3·0		200	—	0·6		—	—	0·3		—	—	0·4		—
	3	87	31·9	++	273	1	6·2	−	16	2	3·6		56	—	4·3	−	—
	4	92	33·5	+	275	3	6·5		46	2	3·7		54	1	4·5		22
1950	1	10	5·2	+	192	1	1·0		100	—	0·6		—	—	0·7		—
	2	7	7·3		96	—	1·4		—	—	0·8		—	1	1·0		100
	3	181	52·9	++	342	1	10·2		10	1	5·9		17	2	7·1		28
	4	106	24·0	++	442	2	4·6		43	1	2·7		37	—	3·2		—

Table LI.—*continued.*

Top section:

Year	Quarter	CANTERBURY Actual notifications	CANTERBURY Expected notifications	CANTERBURY Significant difference (+ or −)	CANTERBURY Actual % of Expected	CARLISLE Actual notifications	CARLISLE Expected notifications	CARLISLE Significant difference (+ or −)	CARLISLE Actual % of Expected	CHESTER Actual notifications	CHESTER Expected notifications	CHESTER Significant difference (+ or −)	CHESTER Actual % of Expected	COVENTRY Actual notifications	COVENTRY Expected notifications	COVENTRY Significant difference (+ or −)	COVENTRY Actual % of Expected
1947	1	—	0·1		—	—	0·2		—	—	0·1		—	—	0·7		—
	2	—	0·2		—	—	0·5		—	—	0·3		—	1	1·7		59
	3	—	3·9		—	7	9·9		71	8	7·2		111	19	38·1	−	50
	4	1	1·4		71	—	3·7		—	6	2·7		222	15	14·2		106
1948	1	3	0·3	+	1,000	1	0·7		143	—	0·5		—	1	2·6		38
	2	—	0·2	·	—	1	0·4	+	250	—	0·3		—	3	1·5		200
	3	—	0·5		—	—	1·2	−	—	—	0·9		—	4	4·5		89
	4	—	0·5		—	1	1·2		83	—	0·8		—	3	4·5		67
1949	1	—	0·1		—	2	0·4		500	—	0·3		—	—	1·4		—
	2	—	0·2		—	—	0·4		—	5	0·3	+	147	4	1·7	−	235
	3	2	1·9		105	4	4·8		80	—	3·4		—	7	18·3	−	38
	4	—	2·0		—	—	5·0		—	—	3·6		—	9	19·3		47
1950	1	—	0·3		—	1	0·8		125	—	0·6		—	2	3·0		67
	2	1	0·4	−	250	—	1·1		—	—	0·8	−	—	7	4·2		167
	3	5	3·1	−	161	9	7·9		114	4	5·7	−	70	61	30·4	+	201
	4	1	1·4		71	—	3·6		—	2	2·6		77	12	13·8		87

Year	Quarter	CROYDON Actual notifications	CROYDON Expected notifications	CROYDON Significant difference (+ or −)	CROYDON Actual % of Expected	DARLINGTON Actual notifications	DARLINGTON Expected notifications	DARLINGTON Significant difference (+ or −)	DARLINGTON Actual % of Expected	DERBY Actual notifications	DERBY Expected notifications	DERBY Significant difference (+ or −)	DERBY Actual % of Expected	DEWSBURY Actual notifications	DEWSBURY Expected notifications	DEWSBURY Significant difference (+ or −)	DEWSBURY Actual % of Expected
1947	1	—	0·7		—	—	0·2		—	—	0·4		—	—	0·1		—
	2	—	1·7		—	2	0·6		333	—	1·0		—	—	0·4		—
	3	63	37·7	+	167	8	12·7	−	63	10	21·5	−	47	10	7·9		127
	4	14	14·0		100	—	4·7		—	12	8·0		150	—	3·0		—
1948	1	2	2·6		77	—	0·9		—	2	1·5		133	—	0·5		—
	2	3	1·5		200	—	0·5		—	—	0·9		—	—	0·3		—
	3	3	4·5		67	—	1·5		—	2	2·6		77	1	0·9		111
	4	5	4·4		114	1	1·5		67	6	2·5	+	240	1	0·9		111
1949	1	2	1·4		143	—	0·5		—	—	0·8		—	—	0·3		—
	2	4	1·7		235	—	0·6		—	2	1·0		200	6	0·4	++	1,500
	3	8	18·2	−	44	2	6·1	−	33	2	10·4	−	19	17	3·8	++	447
	4	3	19·1	−	16	1	6·4		16	1	10·9	−	9	1	4·0		25
1950	1	—	3·0		—	—	1·0		—	2	1·7		18	—	0·6		—
	2	1	4·2	−	24	—	1·4		—	2	2·4		83	—	0·9	−	16
	3	16	30·1		53	—	10·2	−	—	12	17·2		70	1	6·3		60

Table LI.—continued.

Year	Quarter	DONCASTER Actual notifications	DONCASTER Expected notifications	DONCASTER Significant difference (+ or −)	DONCASTER Actual % of Expected	DUDLEY Actual notifications	DUDLEY Expected notifications	DUDLEY Significant difference (+ or −)	DUDLEY Actual % of Expected	EASTBOURNE Actual notifications	EASTBOURNE Expected notifications	EASTBOURNE Significant difference (+ or −)	EASTBOURNE Actual % of Expected	EAST HAM Actual notifications	EAST HAM Expected notifications	EAST HAM Significant difference (+ or −)	EAST HAM Actual % of Expected
1947	1	—	0·2		—	—	0·2	—	—	—	0·2		—	—	0·3	—	—
	2	1	0·6		167	1	0·4		250	—	0·4		—	—	0·8		—
	3	9	12·1		74	3	9·5		32	4	8·6		47	7	18·4		38
	4	3	4·5		67	2	3·5		57	3	3·2		94	3	6·9		43
1948	1	—	0·8		—	—	0·6		—	—	0·6		—	4	1·3	+	308
	2	—	0·5		—	1	0·4		250	—	0·3		—	2	0·7		286
	3	1	1·4		71	—	1·1		—	—	1·0		—	3	2·2		136
	4	1	1·4		71	—	1·1		—	2	1·0		200	2	2·2		91
1949	1	1	0·5		200	—	0·4		—	—	0·3		—	—	0·7		—
	2	—	0·5		—	1	0·4		250	—	0·4		—	—	0·8		—
	3	4	5·8		69	1	4·6		22	2	4·1		49	4	8·9		45
	4	3	6·1		49	3	4·8		63	1	4·3		23	8	9·3		86
1950	1	2	0·9		222	—	0·7		—	—	0·7		—	—	1·4		—
	2	—	1·3		—	7	1·0	++	700	—	0·9		—	—	2·0		—
	3	8	9·7		82	57	7·6		750	1	6·8	—	15	7	14·7		48
	4	7	4·4		159	5	3·4		147	—	3·1		—	4	6·6		61

Year	Quarter	EXETER Actual notifications	EXETER Expected notifications	EXETER Significant difference (+ or −)	EXETER Actual % of Expected	GATESHEAD Actual notifications	GATESHEAD Expected notifications	GATESHEAD Significant difference (+ or −)	GATESHEAD Actual % of Expected	GLOUCESTER Actual notifications	GLOUCESTER Expected notifications	GLOUCESTER Significant difference (+ or −)	GLOUCESTER Actual % of Expected	GREAT YARMOUTH Actual notifications	GREAT YARMOUTH Expected notifications	GREAT YARMOUTH Significant difference (+ or −)	GREAT YARMOUTH Actual % of Expected
1947	1	1	0·2		500	—	0·3		—	—	0·2		—	—	0·1		—
	2	—	0·5	—	—	3	0·8	+	375	2	0·4	+	500	—	0·4		—
	3	2	11·4	+	18	10	17·4	—	57	11	9·7		113	4	7·9	+	51
	4	8	4·3		186	—	6·5		—	3	3·6		83	8	2·9		276
1948	1	4	0·8		500	1	1·2		83	—	0·7		—	—	0·5		—
	2	—	0·5	+	—	—	0·7		—	—	0·4		—	—	0·3	+	—
	3	1	1·4		71	—	2·1		—	1	1·2		83	2	0·9		222
	4	2	1·3		154	2	2·0		100	—	1·1		—	3	0·9		333
1949	1	—	0·4		—	—	0·7		—	—	0·4		—	—	0·3		—
	2	3	0·5	+	600	—	0·8		—	—	0·4		—	—	0·4		—
	3	5	5·5		91	4	8·4		48	4	4·7	—	85	2	3·8		53
	4	—	5·8	—	—	4	8·8		45	—	4·9		—	4	4·0		100
1950	1	1	0·9		111	—	1·4		—	—	0·8		—	—	0·6		—
	2	—	1·3	+	—	2	1·9		105	—	1·1		—	—	0·9		—
	3	15	9·1		165	18	13·9		129	2	7·7	—	26	8	6·3		127
	4	10	4·1		244	6	6·3		95	1	3·5		29	—	2·8		—

Table LI.—*continued.*

Year	Quarter	GRIMSBY Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	HALIFAX Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	HASTINGS Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	HUDDERSFIELD Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·3		—	—	0·3		—	—	0·2		—	—	0·4		—
	2	1	0·6	+	167	2	0·7	—	286	—	0·5	++	—	—	0·9	—	—
	3	31	13·9		223	5	14·6	—	34	19	9·9		192	9	19·4	—	46
	4	8	5·2		154	—	5·4		—	13	3·7		351	—	7·2		—
1948	1	—	0·9		—	—	1·0		—	—	0·7		—	—	1·3		—
	2	1	0·8		167	1	0·6		167	—	0·4		—	—	0·8		—
	3	—	1·7		—	—	1·7	—	—	—	1·2		—	—	2·3		—
	4	1	1·6		63	1·	1·7		—	1	1·2		83	—	2·3		—
1949	1	—	0·5		—	—	0·6		—	—	0·4		—	1	0·7		143
	2	—	0·6		—	1	0·7		—	—	0·4		—	—	0·9	++	—
	3	4	6·7	+	60	1	7·0	—	14	1	4·8		21	31	9·3		333
	4	17	7·0		243	6	7·4		81	1	5·0		20	19	9·8		194
1950	1	1	1·1		91	2	1·1	—	182	—	0·8		—	1	1·5	—	67
	2	1	1·5	+	67	—	1·6	—	—	—	1·1	—	—	—	2·1		—
	3	16	11·1		144	3	11·7		26	—	7·9		—	4	15·5		26
	4	11	5·0		220	—	5·3		—	2	3·6		56	2	7·0		29

Year	Quarter	IPSWICH Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	KINGSTON UPON HULL Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	LEEDS Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected	LEICESTER Actual notifica-tions	Expected notifica-tions	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·3		—	—	0·8		—	—	1·4		—	—	0·8		—
	2	—	0·7	—	—	—	2·1	+	—	9	3·5	+	257	3	2·0	+	150
	3	6	15·7		38	69	44·9	—	154	61	76·1		80	88	42·6		207
	4	—	5·8	—	—	7	16·7		42	19	28·3		67	14	15·9		88
1948	1	—	1·1		—	1	3·1		32	2	5·2		38	·1	2·9		34
	2	—	0·6		—	3	1·8		167	1	3·0	—	33	12	1·7	+	706
	3	—	1·9		—	9	5·4		167	1	9·1		11	3	5·1		59
	4	—	1·8		—	6	5·3		113	7	8·9		79	4	5·0		80
1949	1	1	0·6		167	1	1·7		59	3	2·9		103	2	1·6		125
	2	—	0·7		—	2	2·0		100	3	3·4		88	3	1·9	+	158
	3	2	7·5		27	18	21·6	—	83	38	36·6	+	104	25	20·5		122
	4	4	7·9		51	5	22·7		22	73	38·5		190	36	21·5		167
1950	1	—	1·2		—	2	3·5	—	57	13	6·0	+	217	2	3·3		61
	2	—	1·7	—	—	—	5·0	—	—	9	8·4		107	3	4·7	+	64
	3	1	12·5		8	21	35·9	—	58	65	60·7		107	80	34·0		235
	4	4	5·7		70	8	16·2		49	26	27·5		95	19	15·4		123

Table LI.—continued.

Year	Quarter	LINCOLN Actual notifications	LINCOLN Expected notifications	LINCOLN Significant difference (+ or −)	LINCOLN Actual % of Expected	LIVERPOOL Actual notifications	LIVERPOOL Expected notifications	LIVERPOOL Significant difference (+ or −)	LIVERPOOL Actual % of Expected	MANCHESTER Actual notifications	MANCHESTER Expected notifications	MANCHESTER Significant difference (+ or −)	MANCHESTER Actual % of Expected	MIDDLESBROUGH Actual notifications	MIDDLESBROUGH Expected notifications	MIDDLESBROUGH Significant difference (+ or −)	MIDDLESBROUGH Actual % of Expected
1947	1	—	0·2		—	—	2·2		—	2	1·9		105	—	0·4		—
	2	—	0·5		—	1	5·5		18	3	4·8		63	4	1·0	+	400
	3	8	10·3		78	70	120·3	−	58	135	105·4	+	128	10	21·9	−	46
	4	5	3·9		128	32	44·8	−	71	82	39·2	+	209	5	8·1		62
1948	1	1	0·7		143	8	8·2		98	4	7·2		56	—	1·5		—
	2	1	0·4		250	3	4·8		63	10	4·2	+	238	2	0·9		222
	3	—	1·2		—	11	14·4		76	20	12·6	+	159	7	2·6	+	269
	4	1	1·2	−	83	3	14·1	−	21	14	12·4		113	1	2·6		38
1949	1	—	0·4		—	1	4·6		22	4	4·0		100	—	0·8		—
	2	—	0·5		—	4	5·4		74	5	4·7		106	—	1·0		—
	3	3	5·0		60	73	57·9		126	46	50·7		91	3	10·5		29
	4	6	5·2	+	115	29	60·8	−	48	21	53·3	−	39	2	11·1		18
1950	1	—	0·8		—	9	9·4		96	10	8·3		120	—	1·7		—
	2	2	1·1		182	14	13·3		105	8	11·6		69	—	2·4		—
	3	14	8·3	++	169	127	96·0	+	132	103	84·1	+	122	19	17·4	−	109
	4	3	3·7		81	57	43·5	+	131	39	38·1		102	6	7·9	−	76

Year	Quarter	NEWCASTLE UPON TYNE Actual notifications	NEWCASTLE UPON TYNE Expected notifications	NEWCASTLE UPON TYNE Significant difference (+ or −)	NEWCASTLE UPON TYNE Actual % of Expected	NORTHAMPTON Actual notifications	NORTHAMPTON Expected notifications	NORTHAMPTON Significant difference (+ or −)	NORTHAMPTON Actual % of Expected	NORWICH Actual notifications	NORWICH Expected notifications	NORWICH Significant difference (+ or −)	NORWICH Actual % of Expected	NOTTINGHAM Actual notifications	NOTTINGHAM Expected notifications	NOTTINGHAM Significant difference (+ or −)	NOTTINGHAM Actual % of Expected
1947	1	—	0·8		—	—	0·3		—	—	0·3		—	—	0·8		—
	2	—	2·0		—	—	0·7		—	2	0·8		250	1	2·1		48
	3	56	44·6		126	11	15·8		70	3	18·0		17	8	45·3	−	18
	4	6	16·6		36	12	5·9		203	26	6·7	+	388	10	16·9		59
1948	1	1	3·0		33	2	1·1		182	4	1·2	+	333	1	3·1		32
	2	1	1·8		56	1	0·6		167	1	0·7		143	1	1·8		56
	3	1	5·3	−	19	1	1·9		53	7	2·1	+	333	3	5·4		56
	4	3	5·2		58	4	1·9		211	6	2·1	+	286	3	5·3		57
1949	1	—	1·7		—	—	0·8		—	—	0·7		—	2	1·7		118
	2	—	2·0		—	—	0·7		—	1	0·8		125	—	2·0		—
	3	43	21·5	+	200	8	7·6	+	105	6	8·6		70	33	21·8	+	151
	4	22	22·6		97	3	8·0		38	14	9·1		154	25	22·9		109
1950	1	2	3·5		57	1	1·2		83	9	1·4	+	643	7	3·6		194
	2	11	4·9	+	224	—	1·7		—	—	2·0		—	6	5·0		120
	3	75	35·6	+	211	8	12·6		63	15	14·3		105	33	36·2		91
	4	14	16·1		87	7	5·7		123	2	6·5		31	8	16·4	−	49

Table LI.—*continued.*

OLDHAM | OXFORD | PLYMOUTH | PORTSMOUTH

Year	Quarter	OLDHAM Actual notifications	OLDHAM Expected notifications	OLDHAM Significant difference (+ or −)	OLDHAM Actual % of Expected	OXFORD Actual notifications	OXFORD Expected notifications	OXFORD Significant difference (+ or −)	OXFORD Actual % of Expected	PLYMOUTH Actual notifications	PLYMOUTH Expected notifications	PLYMOUTH Significant difference (+ or −)	PLYMOUTH Actual % of Expected	PORTSMOUTH Actual notifications	PORTSMOUTH Expected notifications	PORTSMOUTH Significant difference (+ or −)	PORTSMOUTH Actual % of Expected
1947	1	—	0·3		—	—	0·3		—	—	0·5		—	—	0·6		—
	2	—	0·8		—	—	0·7		—	—	1·3		—	1	1·5		67
	3	14	18·3	−	77	9	16·0	+	56	5	28·7	−	17	11	33·0	−	33
	4	—	6·8		—	13	6·0		217	5	10·7		47	8	12·3		65
1948	1	1	1·2		83	—	1·1		—	3	1·9		158	6	2·2		273
	2	—	0·7		—	1	0·6		167	2	1·1		182	—	1·3	+	—
	3	3	2·2		136	2	1·9	+	105	2	3·4		59	1	3·9		26
	4	1	2·2		45	6	1·9		316	—	3·4		—	5	3·9		128
1949	1	—	0·7		—	2	0·6		333	1	1·1		91	—	1·3		—
	2	—	0·8		—	1	0·7		143	2	1·3		154	1	1·5		67
	3	—	8·8	−	—	6	7·7		78	14	13·8	−	101	23	15·9	−	145
	4	1	9·3	−	11	10	8·1		123	3	14·5		21	5	16·7		30
1950	1	—	1·4		—	1	1·3		77	1	2·2		45	—	2·6		—
	2	2	2·0		100	2	1·8		111	—	3·2		—	—	3·6		—
	3	11	14·6	−	75	5	12·8	−	39	10	22·9	−	44	19	26·4		72
	4	—	6·6		—	2	5·8		34	23	10·4	+	22	12	11·9		101

PRESTON | READING | ROCHDALE | ROTHERHAM

Year	Quarter	PRESTON Actual notifications	PRESTON Expected notifications	PRESTON Significant difference (+ or −)	PRESTON Actual % of Expected	READING Actual notifications	READING Expected notifications	READING Significant difference (+ or −)	READING Actual % of Expected	ROCHDALE Actual notifications	ROCHDALE Expected notifications	ROCHDALE Significant difference (+ or −)	ROCHDALE Actual % of Expected	ROTHERHAM Actual notifications	ROTHERHAM Expected notifications	ROTHERHAM Significant difference (+ or −)	ROTHERHAM Actual % of Expected
1947	1	—	0·3		—	—	0·3		—	—	0·2		—	—	0·2		—
	2	1	0·8		125	1	0·8		125	2	0·6		333	1	0·6		167
	3	13	18·0		72	8	17·4	−	46	7	13·4		52	12	12·4	−	97
	4	6	6·7		90	1	6·5	−	15	6	5·0		120	—	4·6		—
1948	1	1	1·2		83	—	1·2		—	2	0·9		222	—	0·8		—
	2	—	0·7		—	1	0·7		143	—	0·5		—	—	0·5		—
	3	—	2·1		—	—	2·1		—	4	1·6		250	1	1·5		67
	4	2	2·1		95	4	2·0		200	2	1·6		125	3	1·5		200
1949	1	2	0·7		286	—	0·7		—	1	0·5		200	—	0·5		—
	2	—	0·8	−	—	1	0·8		125	2	0·6		333	1	0·6		167
	3	1	8·6	−	12	19	8·4	+	226	4	6·4		63	7	5·9		119
	4	2	9·1		22	21	8·8	+	239	3	6·8		44	6	6·2		97
1950	1	1	1·4		71	—	1·4		—	—	1·1		—	—	1·0		—
	2	—	2·0	−	—	1	1·9		53	—	1·5		—	1	1·4		71
	3	3	14·3	−	21	7	13·9	−	50	2	10·7	−	19	4	9·9		40
	4	—	6·5		—	—	6·3		—	—	4·8	−	—	1	4·5		22

Table LI.—continued.

ST. HELENS / SALFORD / SHEFFIELD / SMETHWICK

Year	Quarter	ST. HELENS Actual notifications	ST. HELENS Expected notifications	ST. HELENS Significant difference (+ or −)	ST. HELENS Actual % of Expected	SALFORD Actual notifications	SALFORD Expected notifications	SALFORD Significant difference (+ or −)	SALFORD Actual % of Expected	SHEFFIELD Actual notifications	SHEFFIELD Expected notifications	SHEFFIELD Significant difference (+ or −)	SHEFFIELD Actual % of Expected	SMETHWICK Actual notifications	SMETHWICK Expected notifications	SMETHWICK Significant difference (+ or −)	SMETHWICK Actual % of Expected
1947	1	1	0·3		—	—	0·5		—	—	1·4		—	1	0·2		500
	2	—	0·8		—	—	1·2		—	1	3·5		29	3	0·5		600
	3	3	16·7	−	18	65	27·1	+	240	83	77·4	−	107	14	11·7	+	120
	4	9	6·2		145	16	10·1		158	11	28·8		38	3	4·4		68
1948	1	1	1·1		91	5	1·8	++	278	1	5·3		19	—	0·8		—
	2	—	0·7		—	4	1·1		364	2	3·1	+	65	1	0·5		200
	3	1	2·0		50	4	3·2		125	16	9·2		174	—	1·4		—
	4	3	2·0		150	1	3·2		31	5	9·1		55	1	1·4		71
1949	1	—	0·6		—	2	1·0		200	5	2·9	++	172	—	0·4		—
	2	—	0·7	−	—	3	1·2	+	250	3	3·5		86	1	0·5		200
	3	1	8·0	−	13	17	13·0		131	55	37·2	−	148	3	5·6	−	54
	4	—	8·4		—	24	13·7		175	70	39·1	−	179	—	5·9		—
1950	1	—	1·3		—	4	2·1		190	1	6·1	−	16	—	0·9		—
	2	—	1·8		—	3	3·0		100	2	8·5	−	24	5	1·3	+	385
	3	5	13·3	−	38	26	21·6	+	120	56	61·7		91	13	9·3		140
	4	3	6·0		50	7	9·8		71	31	28·0		111	5	4·2		119

SOUTHAMPTON / SOUTHEND-ON-SEA / SOUTHPORT / SOUTH SHIELDS

Year	Quarter	SOUTHAMPTON Actual notifications	SOUTHAMPTON Expected notifications	SOUTHAMPTON Significant difference (+ or −)	SOUTHAMPTON Actual % of Expected	SOUTHEND-ON-SEA Actual notifications	SOUTHEND-ON-SEA Expected notifications	SOUTHEND-ON-SEA Significant difference (+ or −)	SOUTHEND-ON-SEA Actual % of Expected	SOUTHPORT Actual notifications	SOUTHPORT Expected notifications	SOUTHPORT Significant difference (+ or −)	SOUTHPORT Actual % of Expected	SOUTH SHIELDS Actual notifications	SOUTH SHIELDS Expected notifications	SOUTH SHIELDS Significant difference (+ or −)	SOUTH SHIELDS Actual % of Expected
1947	1	1	0·5		200	1	0·4		250	1	0·2		500	—	0·3		—
	2	—	1·2		—	—	1·0		—	—	0·6		—	—	0·7		—
	3	51	27·3	+	187	21	22·5		93	6	12·9		47	14	16·3		86
	4	7	10·1		69	3	8·4		36	1	4·8		21	5	6·1		82
1948	1	1	1·9		53	2	1·5		133	—	0·9		—	1	1·1		91
	2	—	1·1		—	1	0·9		111	—	0·5		—	1	0·7		143
	3	6	3·3		182	5	2·7		185	3	1·5		200	—	1·9		—
	4	6	3·2		188	—	2·6		—	—	1·5		—	1	1·9		53
1949	1	—	1·0		—	—	0·9		—	—	0·5		—	1	0·6		167
	2	1	1·2	+	83	2	1·0		200	—	0·6	−	—	2	0·7		286
	3	25	13·1		191	11	10·8	−	102	1	6·2	−	16	7	7·8		90
	4	12	13·8		87	4	11·4		35	1	6·5		15	3	8·2		37
1950	1	—	2·1		—	—	1·8		—	—	1·0		—	1	1·3		77
	2	1	3·0		33	1	2·5		40	—	1·4	−	—	—	1·8		—
	3	18	21·7		83	19	18·0		106	2	10·3	−	19	18	13·0		138
	4	10	9·8		102	6	8·1		74	—	4·7		—	6	5·9		102

Table LI.—continued.

Group 1

Year	Quarter	STOCKPORT Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	STOKE ON TRENT Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	SUNDERLAND Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	TYNEMOUTH Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0.4		—	—	0.8		—	—	0.5		—	—	0.2		—
	2	—	1.0		51	—	1.9		72	—	1.3	+	—	—	0.5		—
	3	11	21.4	−	—	30	41.6		65	52	27.4		190	10	10.0		100
	4	—	8.0	−		10	15.5			14	10.2		137	3	3.7		81
1948	1	—	1.5		—	—	2.8		—	—	1.9		—	—	0.7		—
	2	—	0.9		154	1	1.7	−	59	1	1.1		91	1	0.4	+	250
	3	4	2.6		160	—	5.0	−	—	2	3.3		61	—	1.2		—
	4	4	2.5			—	4.9		—	4	3.2		125	4	1.2		333
1949	1	—	0.8		—	1	1.6		63	—	1.0		—	—	0.4		—
	2	—	1.0		19	—	1.9	−	—	—	1.2	−	—	—	0.4		—
	3	2	10.3	−	37	8	20.0	−	40	1	13.2	−	8	—	4.8	−	—
	4	4	10.8	−		11	21.0		52	—	13.8		—	1	5.1		20
1950	1	1	1.7		59	4	3.3		121	—	2.1		—	—	0.8		—
	2	4	2.4		167	2	4.6	−	43	15	3.0	+	69	1	1.1		91
	3	10	17.1		58	13	33.2	−	39	19	21.8		192	5	8.0		63
	4	4	7.7		52	7	16.0		47		9.9			6	3.6		167

Group 2

Year	Quarter	WAKEFIELD Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WALLASEY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WALSALL Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WARRINGTON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0.2		—	—	0.3		—	—	0.3		—	1	0.2		500
	2	—	0.4		148	—	0.7	−	26	—	0.8		70	—	0.5	+	—
	3	13	8.8		61	4	15.2		53	12	17.1		141	22	11.8		186
	4	2	3.3			3	5.7			9	6.4			5	4.4		114
1948	1	—	0.6		—	—	1.0		—	—	1.2		—	—	0.8		—
	2	—	0.4		—	1	0.6		56	2	0.7	−	286	—	0.5		—
	3	—	1.0		—	—	1.8		56	4	2.0	−	200	—	1.4		—
	4	3	1.0		300	1	1.8			1	2.0		50	1	1.4		71
1949	1	—	0.3		—	1	0.6		167	—	0.6		—	—	0.4		—
	2	5	0.4		119	—	0.7		—	—	0.8		—	1	0.5		200
	3	5	4.2		136	2	7.3	−	27	—	8.2	−	—	3	5.7	−	53
	4	6	4.4			2	7.7		26	1	8.7		11	1	6.0		17
1950	1	—	0.7		—	—	1.2		—	—	1.3		—	—	0.9		—
	2	—	1.0		71	7	1.7		58	3	1.9	+	158	—	1.3	−	—
	3	5	7.0		31	10	12.1		182	23	13.6		169	2	9.4	−	21
	4	1	3.2				5.5			5	6.2		81	—	4.3		—

Table LI.—*continued.*

WEST BROMWICH · WEST HAM · WEST HARTLEPOOL · WIGAN

Year	Quarter	WEST BROMWICH Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WEST HAM Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WEST HARTLEPOOL Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WIGAN Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	·	0·2		—	—	0·5		—	—	0·2		—	—	0·2		—
	2	—	0·6		—	2	1·2		167	—	0·5		—	—	0·6		—
	3	6	13·1	—	46	6	26·3		23	6	10·9		55	19	12·8		148
	4	—	4·9		—	2	9·8		20	3	4·1		73	5	4·8		104
1948	1	1	0·9		111	—	1·8		—	—	0·7		—	—	0·9		—
	2	—	0·5		—	—	1·1	—	—	—	0·4		—	—	0·5		—
	3	—	1·6		—	3	3·1	—	97	—	1·3		—	—	1·5		—
	4	—	1·5		—	—	3·1		—	—	1·3		—	1	1·5		67
1949	1	—	0·5		—	1	1·0		100	1	0·4		250	1	0·5		200
	2	—	0·6		—	—	1·2		—	—	0·5		—	—	0·6		—
	3	—	6·3	—	—	13	12·6		103	—	5·3	—	—	—	6·2	—	—
	4	2	6·6		30	11	13·3		83	2	5·5		36	—	6·5	—	—
1950	1	—	1·0		—	—	2·1		—	—	0·9		—	—	1·0		—
	2	1	1·4		71	2	2·9		69	3	1·2		250	—	1·4		—
	3	10	10·4		96	14	21·0	—	67	7	8·7		80	1	10·2	—	10
	4	4	4·7		85	2	9·5		21	—	3·9		—	6	4·6		130

WOLVERHAMPTON · WORCESTER · YORK · CARDIFF

Year	Quarter	WOLVERHAMPTON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	WORCESTER Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	YORK Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	CARDIFF Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	0·4		250	—	0·2		—	1	0·3		333	1	0·7		143
	2	2	1·1		182	—	0·4		—	1	0·7		143	—	1·7		—
	3	14	24·3	—	58	5	9·3		54	5	15·7	—	32	55	36·7	+	150
	4	1	9·0	—	11	3	3·5		86	1	5·9	—	17	12	13·7		88
1948	1	—	1·6		—	—	0·6		—	—	1·1		—	—	2·5		—
	2	1	1·0		100	1	0·4		250	—	0·6		—	3	1·5		200
	3	10	2·9	+	345	—	1·1		—	2	1·9		105	24	4·4	++	545
	4	5	2·8		179	2	1·1		182	1	1·8		56	10	4·3	+	233
1949	1	1	0·9		111	—	0·4		—	1	0·6		167	4	1·4		286
	2	2	1·1		182	1	0·4		250	1	0·7		143	1	1·6		63
	3	4	11·7	—	34	1	4·5	—	22	8	7·6	+	105	21	17·7	+	119
	4	1	12·3	—	8	—	4·7		—	35	8·0	+	438	12	18·5		65
1950	1	—	1·9		—	—	0·7		—	4	1·2		333	—	2·9		—
	2	—	2·7		—	—	1·0		—	4	1·7		235	—	4·0		—
	3	54	19·4	+	278	23	7·4	+	311	42	12·6	+	333	8	29·3	—	27
	4	11	8·8		125	7	3·4		206	15	5·7	++	263	7	13·2		53

Table LI.—continued.

Year	Quarter	MERTHYR TYDFIL				NEWPORT (MON.)				SWANSEA			
		Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·2		—	1	0·3		333	—	0·4		—
	2	1	0·4		250	—	0·7		—	2	1·1		182
	3	9	9·0		100	8	15·9		50	18	24·1		75
	4	2	3·4		59	2	5·9		34	7	9·0		78
1948	1	—	0·6		—	2	1·1		182	—	1·6		—
	2	1	0·4		250	1	0·6		167	1	1·0		100
	3	1	1·1		91	2	1·9		105	9	2·9	+	310
	4	—	1·1		—	—	1·9		—	2	2·8		71
1949	1	—	0·3		—	—	0·6		—	—	0·9		—
	2	2	0·4	+	500	1	0·7	−	143	—	1·1		—
	3	1	4·4		23	—	7·7	−	—	5	11·6	+	43
	4	2	4·6		43	—	8·1		—	25	12·2	+	205
1950	1	—	0·7		—	—	1·2		—	5	1·9		263
	2	—	1·8		42	2	1·8		111	5	2·7		185
	3	3	7·2		—	6	12·7		47	25	19·2	+	130
	4	—	3·3		—	1	5·8		17	10	8·7		115

Table LI.—continued.

(B) ADMINISTRATIVE COUNTIES.

Top section — BEDFORD, BERKS, BUCKINGHAM, CAMBRIDGE

Year	Quarter	Bedford Actual notifications	Bedford Expected notifications	Bedford Significant difference (+ or −)	Bedford Actual % of Expected	Berks Actual notifications	Berks Expected notifications	Berks Significant difference (+ or −)	Berks Actual % of Expected	Buckingham Actual notifications	Buckingham Expected notifications	Buckingham Significant difference (+ or −)	Buckingham Actual % of Expected	Cambridge Actual notifications	Cambridge Expected notifications	Cambridge Significant difference (+ or −)	Cambridge Actual % of Expected
1947	1	—	0·8		—	1	0·8		125	2	1·0		200	—	0·5		—
	2	7	2·1	+	333	1	1·9		53	2	2·6		77	—	1·1		—
	3	67	45·5	+	147	42	42·0		100	28	56·8	−	49	12	24·7	−	49
	4	38	16·9	+	225	14	15·6		90	14	21·1		66	3	9·2	−	33
1948	1	8	3·1	+	258	3	2·9		103	6	3·9		154	1	1·7		59
	2	8	1·8	+	444	1	1·7		59	1	2·3		43	1	1·0		100
	3	6	5·4		111	9	5·0		180	16	6·8	+	235	7	2·9	+	241
	4	5	5·3		94	5	4·9		102	15	6·7	+	224	5	2·9		172
1949	1	3	1·7		176	3	1·6		188	6	2·2	+	273	2	0·9		222
	2	2	2·0		100	2	1·9		105	3	2·5		120	—	1·1		—
	3	22	21·9		100	37	20·2	+	183	13	27·3	−	48	5	11·9		42
	4	31	23·0		135	25	21·2		118	32	28·7		115	9	12·5		72
1950	1	—	3·6		—	3	3·3		91	5	4·5		111	1	1·9		53
	2	6	5·0		120	3	4·6		65	—	6·3		—	—	2·7		—
	3	15	36·3	−	41	24	33·5		72	40	45·3	−	88	2	19·7	−	10
	4	24	16·4		146	18	15·2		118	20	20·5		98	6	8·9		67

Bottom section — CHESTER, CORNWALL, CUMBERLAND, DERBY

Year	Quarter	Chester Actual notifications	Chester Expected notifications	Chester Significant difference (+ or −)	Chester Actual % of Expected	Cornwall Actual notifications	Cornwall Expected notifications	Cornwall Significant difference (+ or −)	Cornwall Actual % of Expected	Cumberland Actual notifications	Cumberland Expected notifications	Cumberland Significant difference (+ or −)	Cumberland Actual % of Expected	Derby Actual notifications	Derby Expected notifications	Derby Significant difference (+ or −)	Derby Actual % of Expected
1947	1	2	2·2		91	—	0·9		—	—	0·6		—	2	1·9		105
	2	3	5·5	−	55	2	2·3		87	3	1·5		200	4	4·7		85
	3	94	121·0		78	19	50·1	−	38	72	31·9	+	226	61	102·1	−	60
	4	68	45·0	+	151	23	18·7		123	2	11·9	−	17	36	38·0		95
1948	1	15	8·2	+	183	12	3·4	+	353	2	2·2		91	2	6·9		29
	2	5	4·8		104	2	2·0		100	2	1·3		154	1	4·1		24
	3	4	14·4	−	28	4	6·0		67	3	3·8		79	9	12·2		74
	4	14	14·2		99	3	5·9		51	2	3·7		54	18	12·0		150
1949	1	2	4·6		43	1	1·9		53	2	1·2		167	8	3·9	+	205
	2	9	5·4		167	14	2·3	+	609	2	1·4		143	3	4·6		65
	3	45	58·2		77	78	24·1	+	324	7	15·3	−	46	16	49·1	−	33
	4	60	61·2		98	22	25·4		87	21	16·1		130	24	51·6	−	47
1950	1	7	9·5		74	3	3·9		77	6	2·5	+	240	9	8·0		113
	2	5	13·4	−	37	7	5·5		127	3	3·5		86	7	11·3		62
	3	46	96·5	−	48	29	40·0		73	15	25·4		59	31	81·5	−	38
	4	35	43·7		80	60	18·1	+	331	4	11·5	−	35	18	36·9	−	49

Table LI.—*continued.*

DEVON / DORSET / DURHAM / ELY, ISLE OF

Year	Quarter	DEVON Actual notifications	DEVON Expected notifications	DEVON Significant difference (+ or −)	DEVON Actual % of Expected	DORSET Actual notifications	DORSET Expected notifications	DORSET Significant difference (+ or −)	DORSET Actual % of Expected	DURHAM Actual notifications	DURHAM Expected notifications	DURHAM Significant difference (+ or −)	DURHAM Actual % of Expected	ELY Actual notifications	ELY Expected notifications	ELY Significant difference (+ or −)	ELY Actual % of Expected
1947	1	1	1·4		71	3	0·8	+	375	2	2·5		80	—	0·2		—
	2	1	3·5	−	29	2	1·9		105	8	6·2		129	—	0·6		—
	3	38	75·4		50	47	41·4	+	114	249	135·3	+	184	—	13·5	−	—
	4	26	28·1		93	25	15·4		162	25	50·4	−	50	3	5·0		60
1948	1	10	5·1	+	196	3	2·8	+	107	6	9·2		65	1	0·9		111
	2	—	3·0		—	—	1·7		—	3	5·4		56	—	0·5		—
	3	6	9·0		67	12	4·9		245	12	16·1		75	—	1·6		—
	4	10	8·9		112	6	4·9		122	10	15·9		63	—	1·6		—
1949	1	1	2·9		34	1	1·6		63	3	5·1		59	—	0·5		—
	2	12	3·4	++	353	—	1·9		—	—	6·1	−	—	—	0·6		—
	3	64	36·3	+	176	25	19·9	+	126	25	65·1	−	38	5	6·5		77
	4	18	38·2	−	47	49	20·9		234	11	68·4	−	16	2	6·8		29
1950	1	7	5·9	−	119	4	3·2		125	4	10·6	−	38	—	1·1		—
	2	1	8·3		12	2	4·6		43	10	14·9		67	—	1·5		—
	3	92	60·2	+	153	79	33·0	++	239	118	107·9		109	8	10·7		75
	4	89	27·2	++	327	42	14·9		282	39	48·9		80	2	4·9		41

ESSEX / GLOUCESTER / HEREFORD / HERTFORD

Year	Quarter	ESSEX Actual notifications	ESSEX Expected notifications	ESSEX Significant difference (+ or −)	ESSEX Actual % of Expected	GLOUCESTER Actual notifications	GLOUCESTER Expected notifications	GLOUCESTER Significant difference (+ or −)	GLOUCESTER Actual % of Expected	HEREFORD Actual notifications	HEREFORD Expected notifications	HEREFORD Significant difference (+ or −)	HEREFORD Actual % of Expected	HERTFORD Actual notifications	HERTFORD Expected notifications	HERTFORD Significant difference (+ or −)	HERTFORD Actual % of Expected
1947	1	4	4·3		93	2	1·2		167	2	0·3	+	667	2	1·6		125
	2	6	10·7	−	56	3	2·9		103	1	0·9		111	5	4·1		122
	3	197	234·1		84	55	63·7		86	32	18·8	++	170	82	89·8		91
	4	64	87·2	−	73	23	23·7		97	13	7·0		186	42	33·4		126
1948	1	13	15·9		82	7	4·3		163	3	1·3		231	6	6·1		98
	2	8	9·4		85	1	2·5		40	1	0·8		125	3	3·6		83
	3	25	27·9		90	3	7·6		39	—	2·2		—	13	10·7		121
	4	17	27·5		62	8	7·5		107	1	2·2		46	14	10·5		133
1949	1	7	8·9		79	3	2·4		125	—	0·7		—	7	3·4	+	206
	2	14	10·5		133	4	2·9		138	1	0·8		125	6	4·0		150
	3	142	112·7	++	126	21	30·1		70	11	9·0		122	54	43·2		125
	4	222	118·4		188	24	32·2		75	12	9·5		126	61	45·4		134
1950	1	20	18·4		109	2	5·0		40	2	1·5	+	133	4	7·0		57
	2	20	25·8		78	4	7·0		57	1	2·1		48	9	9·9		91
	3	164	186·8		88	81	50·8	++	159	26	15·0		173	46	71·6	−	64
	4	50	84·6	−	59	43	23·0		187	11	6·8		162	27	32·4		83

Table LI.—continued.

Year	Quarter	HUNTINGDON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	KENT Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	LANCASTER Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	LEICESTER Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	2	0·2		1,000	4	4·1		98	2	5·6		36	—	0·9		—
	2	1	0·4		250	17	10·3	+	165	13	13·9		94	1	2·4	−	42
	3	7	9·7		72	229	225·0		102	286	304·4		94	28	51·6	−	54
	4	2	3·6		56	89	83·8		106	125	113·3		110	9	19·2		47
1948	1	—	0·7		—	16	15·3		105	19	20·7		92	1	3·5		29
	2	—	0·4		—	2	9·0	−	22	10	12·2		82	5	2·1	+	238
	3	—	1·2		—	32	26·8		119	21	36·3	−	58	8	6·2		129
	4	—	1·1		—	37	26·4	+	140	23	35·8	−	64	1	6·1	−	16
1949	1	—	0·4		—	13	8·5	+	153	9	11·6		78	—	2·0		—
	2	—	0·4		—	4	10·1		40	8	13·7	−	58	1	2·3		43
	3	2	4·7		43	98	108·3		90	122	146·5		83	47	24·8	+	190
	4	12	4·9	+	245	213	113·8	+	187	124	153·9		81	31	26·1		119
1950	1	1	0·8		125	27	17·6	+	153	12	23·9		50	2	4·0		50
	2	—	1·1		—	17	24·8		69	26	33·6		77	4	5·7		70
	3	5	7·7		65	156	179·5		87	94	242·8	−	39	35	41·1		85
	4	1	3·5		29	107	81·3	+	132	62	109·9	−	56	19	18·6		102

Year	Quarter	LINCS.: HOLLAND Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	LINCS.: KESTEVEN Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	LINCS.: LINDSEY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	LONDON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	0·3		333	—	0·3		—	—	0·8		—	16	9·4	+	170
	2	3	0·7		429	—	0·8		—	1	2·1		48	30	23·4		128
	3	40	15·3	+	261	23	18·3		126	71	45·2	+	157	785	511·2	++	154
	4	7	5·7	+	123	9	6·8		132	21	16·8		125	224	190·4	++	118
1948	1	1	1·0		100	2	1·2		167	2	3·1		65	48	34·7		138
	2	—	0·6		—	2	0·7		286	—	1·8		—	30	20·4	++	147
	3	5	1·8	+	278	3	2·2		136	1	5·4		19	76	61·0		125
	4	2	1·8		111	5	2·2		227	8	5·3		151	58	60·1		97
1949	1	1	0·6		167	1	0·7		143	3	1·7		176	22	19·4		113
	2	—	0·7		—	—	0·8		—	1	2·0		50	31	23·0		135
	3	7	7·4		95	12	8·8		136	36	21·8	+	165	381	246·0	++	155
	4	3	7·7		39	4	9·3		43	28	22·9		122	460	258·5		178
1950	1	—	1·2		—	1	1·4		71	—	3·5		—	49	40·1		122
	2	3	1·7		176	1	2·0		50	5	5·0		100	58	56·4		103
	3	23	12·2	+	189	89	14·6	++	610	45	36·1		125	347	407·9	−	85
	4	2	5·5		36	16	6·6	++	242	15	16·3		92	128	184·6	−	69

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Table LI.—continued.

Year	Quarter	MIDDLESEX Actual notifications	MIDDLESEX Expected notifications	MIDDLESEX Significant difference (+ or −)	MIDDLESEX Actual % of Expected	NORFOLK Actual notifications	NORFOLK Expected notifications	NORFOLK Significant difference (+ or −)	NORFOLK Actual % of Expected	NORTHAMPTON Actual notifications	NORTHAMPTON Expected notifications	NORTHAMPTON Significant difference (+ or −)	NORTHAMPTON Actual % of Expected	NORTHUMBERLAND Actual notifications	NORTHUMBERLAND Expected notifications	NORTHUMBERLAND Significant difference (+ or −)	NORTHUMBERLAND Actual % of Expected
1947	1	7	6·3		111	3	1·0		300	—	0·7		—	1	1·2		83
	2	17	15·8		108	—	2·4		—	1	1·7		59	3	3·0		100
	3	343	344·1		100	24	53·2	−	45	19	37·8	−	50	78	65·7		119
	4	163	128·1	+	127	21	19·8		106	6	14·1	−	43	25	24·5		102
1948	1	40	23·4	+	171	4	3·6		111	1	2·6		38	4	4·5		89
	2	14	13·8		101	—	2·1		—	1	1·5		67	—	2·6		—
	3	60	41·1	+	146	7	6·3		111	6	4·5		133	3	7·8		38
	4	45	40·4		111	10	6·2		161	24	4·4	+	545	2	7·7	−	26
1949	1	18	13·1		137	4	2·0		200	—	1·4		—	—	2·5		—
	2	22	15·4	+	143	3	2·4		125	3	1·7		176	1	2·9		34
	3	197	165·6		119	15	25·6	−	59	21	18·2		115	26	31·6	−	82
	4	179	174·0		103	48	26·9	+	178	19	19·1		99	11	33·2		33
1950	1	31	27·0		115	24	4·2	+	571	15	3·0	+	500	1	5·2		19
	2	24	38·0	−	63	13	5·9	+	220	7	4·2		167	9	7·3		123
	3	209	274·5	−	76	58	42·4	+	137	41	30·1	+	136	76	52·4	+	145
	4	64	124·3	−	51	24	19·2		125	22	13·6		162	18	23·7		76

Year	Quarter	NOTTINGHAM Actual notifications	NOTTINGHAM Expected notifications	NOTTINGHAM Significant difference (+ or −)	NOTTINGHAM Actual % of Expected	OXFORD Actual notifications	OXFORD Expected notifications	OXFORD Significant difference (+ or −)	OXFORD Actual % of Expected	PETERBOROUGH, SOKE OF Actual notifications	PETERBOROUGH, SOKE OF Expected notifications	PETERBOROUGH, SOKE OF Significant difference (+ or −)	PETERBOROUGH, SOKE OF Actual % of Expected	RUTLAND Actual notifications	RUTLAND Expected notifications	RUTLAND Significant difference (+ or −)	RUTLAND Actual % of Expected
1947	1	1	1·4		71	—	0·4		—	—	0·2		—	—	0·1		—
	2	1	3·6		28	—	1·1		—	—	0·4		—	—	0·1		—
	3	44	78·7	−	56	26	24·6		106	2	9·6	−	21	—	3·0		—
	4	31	29·3		106	7	9·2		76	2	3·6		56	2	1·1		182
1948	1	2	5·3		38	—	1·7		—	—	0·6		—	—	0·2		—
	2	3	3·1		97	—	1·0		—	—	0·4		—	—	0·1		—
	3	8	9·4		85	4	2·9		138	—	1·1		—	2	0·4	+	500
	4	14	9·2		152	2	2·9		69	—	1·1		—	1	0·4		250
1949	1	4	3·0		133	—	0·9		—	—	0·4		—	—	0·1		—
	2	2	3·5		57	4	1·1	+	364	—	0·4		—	—	0·1		—
	3	43	37·9		113	12	11·8		102	9	4·6	+	196	1	1·5		67
	4	44	39·8		111	8	12·4		65	4	4·8		83	4	1·5		267
1950	1	6	6·2		97	5	1·9	+	263	1	0·7		143	—	0·2		—
	2	5	8·7		57	4	2·7		148	—	1·1		—	—	0·3		—
	3	40	62·8	−	64	11	19·6		56	12	7·6		158	6	2·4	+	250
	4	21	28·4		74	4	8·9		45	7	3·5		200	2	1·1		182

Table LI.—continued.

SALOP | SOMERSET | SOUTHAMPTON | STAFFORD

Year	Quarter	SALOP Actual notifications	SALOP Expected notifications	SALOP Significant difference (+ or −)	SALOP Actual % of Expected	SOMERSET Actual notifications	SOMERSET Expected notifications	SOMERSET Significant difference (+ or −)	SOMERSET Actual % of Expected	SOUTHAMPTON Actual notifications	SOUTHAMPTON Expected notifications	SOUTHAMPTON Significant difference (+ or −)	SOUTHAMPTON Actual % of Expected	STAFFORD Actual notifications	STAFFORD Expected notifications	STAFFORD Significant difference (+ or −)	STAFFORD Actual % of Expected
1947	1	—	0·8		—	—	1·3		—	3	1·6		188	—	2·3		—
	2	—	1·9	—	—	—	3·2	—	—	3	4·0		75	4	5·8	−	69
	3	19	41·0		46	45	70·2		64	83	87·2		95	84	126·2	−	67
	4	18	15·3		118	24	26·2		92	36	32·5		111	31	47·0		66
1948	1	5	2·8		179	5	4·8		104	5	5·9		85	2	8·6		23
	2	1	1·6		63	12	2·8	+	429	1	3·5		29	5	5·0	−	100
	3	3	4·9		61	10	8·4	+	119	5	10·4		48	14	15·1		93
	4	6	4·8		125	15	8·3		181	14	10·2		137	7	14·8	−	47
1949	1	1	1·6		63	3	2·7		111	5	3·3		152	2	4·8		42
	2	1	1·8	−	56	6	3·2		188	6	3·9		154	1	5·7		18
	3	4	19·8	−	20	38	33·8		112	74	41·9	+	177	13	60·7	−	21
	4	7	20·8		34	42	35·5		118	45	44·1		102	28	63·8	−	44
1950	1	1	3·2		31	7	5·5		127	10	6·8		147	12	9·9		121
	2	4	4·5		89	4	7·8		51	7	9·6	−	73	40	13·9	+	288
	3	33	32·7	+	101	72	56·0	+	129	42	69·5	+	60	199	100·7	+	198
	4	23	14·8		155	61	25·4	+	240	43	31·5		137	54	45·6		118

SUFFOLK E. | SUFFOLK W. | SURREY | SUSSEX E.

Year	Quarter	SUFFOLK E. Actual notifications	SUFFOLK E. Expected notifications	SUFFOLK E. Significant difference (+ or −)	SUFFOLK E. Actual % of Expected	SUFFOLK W. Actual notifications	SUFFOLK W. Expected notifications	SUFFOLK W. Significant difference (+ or −)	SUFFOLK W. Actual % of Expected	SURREY Actual notifications	SURREY Expected notifications	SURREY Significant difference (+ or −)	SURREY Actual % of Expected	SUSSEX E. Actual notifications	SUSSEX E. Expected notifications	SUSSEX E. Significant difference (+ or −)	SUSSEX E. Actual % of Expected
1947	1	—	0·6		—	—	0·3		—	2	3·7		54	3	0·9	+	333
	2	—	1·5	−	—	—	0·8	−	—	14	9·2	+	152	1	2·3		43
	3	31	32·2		96	6	17·0		35	272	201·6	+	135	53	50·7	+	105
	4	18	12·0		150	10	6·3		159	95	75·1		126	36	18·9		190
1948	1	—	2·2		—	2	1·2		167	18	13·7		131	12	3·4	+	353
	2	1	1·3		77	—	0·7		—	7	8·1		86	1	2·0		50
	3	1	3·8		26	1	2·0		50	26	24·1		108	2	6·0		33
	4	7	3·8		184	2	2·0		100	27	23·7		114	3	6·0		50
1949	1	1	1·2		83	1	0·6		167	8	7·7		104	2	1·9		105
	2	—	1·4		—	—	0·8		—	6	9·1		66	7	2·3	+	304
	3	15	15·5		97	19	8·2	+	232	81	97·0		84	18	24·4		74
	4	17	16·3		104	3	8·6		35	100	102·0		98	21	25·6		82
1950	1	—	2·5		—	1	1·3		77	20	15·8		127	3	4·0		75
	2	1	3·6	−	28	2	1·9	−	105	5	22·3	−	22	2	5·6	−	30
	3	10	25·7		39	4	13·5	−	30	100	160·9	−	62	23	40·4		57
	4	6	11·6		52	1	6·1		16	80	72·8		110	12	18·3		66

Table LI.—continued.

SUSSEX W.

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	2	0·9		222
	2	3	2·2		136
	3	47	47·0	−	100
	4	8	17·5		46
1948	1	—	3·2		—
	2	—	1·9		—
	3	6	5·6		107
	4	9	5·5		164
1949	1	1	1·8		56
	2	1	2·1		48
	3	23	22·6	−	102
	4	11	23·7		46
1950	1	1	3·7		27
	2	2	5·2		38
	3	35	37·5		93
	4	26	17·0	+	153

WARWICK

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	3	1·3		231
	2	8	3·3	++	242
	3	101	72·1	++	140
	4	24	26·9		89
1948	1	6	4·9		122
	2	—	2·9		—
	3	6	8·6		70
	4	6	8·5		71
1949	1	1	2·7		37
	2	4	3·2		125
	3	29	34·7		84
	4	40	36·5		110
1950	1	3	5·7		53
	2	14	8·0	++	175
	3	109	57·6	++	189
	4	15	26·1	−	57

WESTMORLAND

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·2		—
	2	4	0·5	++	800
	3	21	10·1	++	208
	4	4	3·8		105
1948	1	—	0·7		—
	2	—	0·4		—
	3	—	1·2		—
	4	1	1·2		83
1949	1	1	0·4		250
	2	—	0·5		—
	3	4	4·9	+	82
	4	13	5·1		255
1950	1	—	0·8		—
	2	—	1·1		—
	3	2	8·1	−	25
	4	1	3·7		27

WIGHT, ISLE OF

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·3		—
	2	—	0·6		—
	3	35	14·1	++	248
	4	11	5·3	++	208
1948	1	3	1·0		300
	2	—	0·6		—
	3	4	1·7		235
	4	—	1·7		—
1949	1	3	0·5		600
	2	—	0·6		—
	3	4	8·8	+	59
	4	4	7·1		56
1950	1	3	1·1		273
	2	2	1·6		125
	3	72	11·3	+	637
	4	—	5·1	−	—

WILTSHIRE

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	1·0		—
	2	1	2·4		42
	3	41	52·9		78
	4	24	20·0		120
1948	1	15	3·6	+	42
	2	2	2·1		95
	3	13	6·3	+	206
	4	11	6·2		177
1949	1	6	2·0	+	300
	2	1	2·4		42
	3	47	25·4	+	185
	4	27	26·7		101
1950	1	4	4·1		98
	2	1	5·8		17
	3	46	42·2	+	109
	4	30	19·1		157

WORCESTER

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	1·1		91
	2	7	2·7	+	259
	3	49	59·1		83
	4	17	22·0		77
1948	1	1	4·0		25
	2	2	2·4		83
	3	2	7·1		28
	4	3	6·9		43
1949	1	3	2·2		136
	2	2	2·7		74
	3	6	28·5	−	21
	4	9	29·9	−	30
1950	1	4	4·6		87
	2	36	6·5	++	554
	3	111	47·2	++	235
	4	19	21·4		89

YORKS (E. R.)

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·6		—
	2	2	1·4		143
	3	56	31·6	+	177
	4	7	11·8		59
1948	1	—	2·1		—
	2	1	1·3		77
	3	5	3·8		132
	4	2	3·7		54
1949	1	—	1·2		—
	2	—	1·4		—
	3	9	15·2		59
	4	11	16·0		69
1950	1	—	2·5		—
	2	—	3·5		—
	3	14	25·2	−	56
	4	10	11·4		88

YORKS (N. R.)

Year	Quarter	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	1·0		100
	2	4	2·4		167
	3	62	53·5		116
	4	15	19·9		75
1948	1	—	3·6		—
	2	2	2·1		95
	3	2	6·4		31
	4	1	6·3		16
1949	1	—	2·0		—
	2	2	2·4		83
	3	11	25·7	−	43
	4	17	27·0		63
1950	1	2	4·2		48
	2	4	5·9		68
	3	52	42·7	−	122
	4	26	19·3		135

Table LI.—*continued.*

YORKS (W. R.) · ANGLESEY · BRECKNOCK · CAERNARVON

Year	Quarter	YORKS (W.R.) Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	ANGLESEY Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	BRECKNOCK Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	CAERNARVON Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	11	4·4	+	250	—	0·1		—	—	0·1		—	—	0·3		—
	2	9	10·9	+	83	—	0·3		—	—	0·4		—	—	0·9		—
	3	330	238·0	—	139	—	7·4	—	—	8	8·2		98	6	18·6	—	32
	4	85	88·6		96	2	2·8		71	4	3·1		129	5	6·9		72
1948	1	5	16·2	—	31	1	0·5		200	—	0·6		—	1	1·3		77
	2	14	9·5		147	—	0·3		—	1	0·3		333	—	0·7		—
	3	21	28·4		74	—	0·9		—	1	1·0		100	2	2·2		91
	4	29	28·0		104	—	0·9		—	1	1·0		100	1	2·2		45
1949	1	7	9·0		78	—	0·3		—	1	0·3		333	1	0·7		143
	2	9	10·7		84	—	0·3		—	1	0·4		250	—	0·8		—
	3	167	114·6	+	146	—	3·6		—	1	3·9		26	2	9·0	—	22
	4	133	120·4		110	1	3·7		27	2	4·1		49	—	9·4	—	—
1950	1	30	18·7	+	160	—	0·6		—	1	0·6		167	1	1·5		67
	2	22	26·3	—	84	—	0·8		—	—	0·9		—	—	2·1		—
	3	117	189·9	—	62	3	5·9		51	3	6·5		46	14	14·8	+	95
	4	65	86·0		76	1	2·7		37	3	3·0		100	16	6·7		239

CARDIGAN · CARMARTHEN · DENBIGH · FLINT

Year	Quarter	CARDIGAN Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	CARMARTHEN Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	DENBIGH Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	FLINT Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	—	0·1		—	—	0·5		—	1	0·5		200	—	0·4		—
	2	—	0·4		—	—	1·2		—	—	1·2		—	—	1·0		—
	3	7	8·2		85	33	25·8		128	17	25·4		67	15	21·1	+	71
	4	2	3·1		65	14	9·6		146	7	9·5		74	22	7·8		282
1948	1	—	0·6		—	1	1·8		100	—	1·7		—	—	1·4		—
	2	—	0·3		—	9	1·0	+	290	—	1·0		—	—	0·8		—
	3	—	1·0		—	5	3·1		167	—	3·0		—	5	2·5		200
	4	1	1·0		100	—	3·0		—	2	3·0		67	5	2·5		200
1949	1	—	0·3		—	2	1·0		167	—	1·0		—	3	0·8		375
	2	—	0·4		—	8	1·2	—	65	—	1·1	—	—	1	0·9	+	111
	3	1	3·9		26	8	12·4		65	2	12·2	—	16	6	10·1		59
	4	1	4·1		24	4	13·0		308	—	12·9		—	3	10·7		28
1950	1	—	0·6		—	2	2·0		71	—	2·0		—	2	1·7		118
	2	—	0·9		—	2	2·8	+	—	1	2·8	+	36	—	2·3	—	—
	3	3	6·5		46	32	20·5		156	30	20·3	+	148	20	16·8		119
	4	—	3·0		—	4	9·3		43	33	9·2		359	6	7·6		79

Table LI.—*continued.*

Top section:

Year	Quarter	GLAMORGAN				MERIONETH				MONMOUTH				MONTGOMERY			
		Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	2·0		50	—	0·1		—	2	0·9		222	—	0·1		—
	2	—	5·0	—	—	—	0·3		—	—	2·2	—	—	—	0·3		—
	3	86	109·9	—	78	2	5·9		34	17	48·0		35	5	6·8		74
	4	24	40·9		59	4	2·2		182	11	17·9		61	10	2·5		400
1948	1	2	7·5		27	—	0·4		—	—	3·3		—	1	0·5		200
	2	4	4·4		91	5	0·2	+	2,500	—	1·9		—	—	0·3	+	—
	3	18	13·1		137	—	0·7		—	3	5·7		53	2	0·8		250
	4	12	12·9		93	1	0·7		143	5	5·6		89	—	0·8		—
1949	1	6	4·2		143	—	0·2		—	1	1·8		56	—	0·3		—
	2	4	4·9		82	—	0·3		—	1	2·2		45	—	0·3		—
	3	34	52·9	—	64	—	2·8		—	20	23·1	—	87	1	3·3		30
	4	31	55·6	—	56	—	3·0		—	12	24·3		49	2	3·5		57
1950	1	11	8·6		128	—	0·5		—	—	3·8		—	—	0·5		—
	2	9	12·1		74	—	0·7		—	4	5·3	—	75	—	0·8		—
	3	74	87·7		84	2	4·7		43	15	38·3	—	39	15	5·4	+	278
	4	31	39·7		78	5	2·1		238	7	17·3		40	7	2·5	+	280

Year	Quarter	PEMBROKE				RADNOR			
		Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected	Actual notifications	Expected notifications	Significant difference (+ or −)	Actual % of Expected
1947	1	1	0·2		500	1	0·1		1,000
	2	—	0·6		—	—	0·1		—
	3	6	13·0		46	2	3·0	+	67
	4	3	4·8		63	5	1·1		455
1948	1	1	0·9		111	—	0·2		—
	2	1	0·5		200	—	0·1	+	—
	3	1	1·6		63	—	0·4		—
	4	—	1·5		—	—	0·4		—
1949	1	—	0·5		—	—	0·1		—
	2	—	0·6		—	—	0·1		—
	3	1	6·3		16	—	1·5		—
	4	1	6·6		15	2	1·5		133
1950	1	—	1·0		—	—	0·2		—
	2	—	1·4	—	38	—	0·3		—
	3	4	10·4	—	—	5	2·4	+	208
	4	7	4·7		149	5	1·1	+	455

Table LII.—Acute Poliomyelitis: Notification, fatality and death rates in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 100,000 living	Deaths per 1,000 notifications	Death rate per million living
ENGLAND AND WALES	18	10	17
Conurbations	18	9	16
Areas outside conurbations	18	10	18
Urban areas with populations of 100,000 and over	19	8	16
Urban areas with populations of 50,000 and under 100,000	13	12	16
Urban areas with populations under 50,000	16	10	16
Rural areas	21	11	23
NORTH			
Regions:			
Northern	18	8	15
East and West Ridings	14	9	12
North Western	10	11	11
Total	13	9	12
Conurbations:			
Tyneside	25	4	10
West Yorkshire	13	10	14
South East Lancashire	11	9	10
Merseyside	14	9	13
Total	14	8	12
Areas outside conurbations:			
Urban areas with populations of 100,000 and over	—	—	10
Urban areas with populations of 50,000 and under 100,000	—	—	13
Urban areas with populations under 50,000	—	—	11
Rural areas	—	—	15
MIDLANDS AND EASTERN			
Regions:			
North Midland	19	11	21
Midland	33	11	37
Eastern	14	10	14
Total	24	11	25
MIDLANDS AND EASTERN *(contd.)*			
Conurbation:			
West Midland	44	11	47
Areas outside conurbation:			
Urban areas with populations of 100,000 and over	—	—	10
Urban areas with populations of 50,000 and under 100,000	—	—	19
Urban areas with populations under 50,000	—	—	18
Rural areas	—	—	28
GREATER LONDON	14	7	10
SOUTH			
Regions:			
Remainder of South East	13	9	12
Southern	20	11	22
South Western	31	11	35
Total	22	11	24
Urban areas with populations of 100,000 and over	—	—	34
Urban areas with populations of 50,000 and under 100,000	—	—	15
Urban areas with populations under 50,000	—	—	22
Rural areas	—	—	23
WALES			
Regions:			
Wales I and II	16	8	13
Urban areas with populations of 100,000 and over	—	—	10
Urban areas with populations of 50,000 and under 100,000	—	—	—
Urban areas with populations under 50,000	—	—	12
Rural areas	—	—	18

Table LIII.—Acute Infectious Encephalitis: Notifications and deaths, 1931 to 1950

Year	Number of notifications†	Number of deaths			
		Acute form	Sequelæ	Unspecified	Total
1931... ...	654	?	?	?	771
1932... ...	564	?	?	?	662
1933... ...	432	?	?	?	654
1934... ...	411	?	?	?	632
1935... ...	329	?	?	?	579
1936... ...	269	?	?	?	574
1937... ...	217	?	?	?	599
1938... ...	194	?	?	?	516
1939... ...	159	37	223	312	572
1940... ...	211	49	356	324	729
1941... ...	191	36	363	305	704
1942... ...	148	29	330	231	590
1943... ...	109	20	304	171	495
1944... ...	(a) 88 (b) 79	14	244	159	417
1945... ...	(a) 93 (b) 76	32	288	141	461
1946... ...	(a) 90 (b) 78	33	314	90	437
1947... ...	(a) 84 (b) 68	73	259	94	426
1948... ...	(a) 36 (b) 30	80	192	101	373
1949... ...	(a) 56 (b) 49	65	194	103	362

Year	Number of notifications	Acute infectious encephalitis (082)	Late effects of acute inf. encephalitis (083)	Total
1949* ...	(a) 56 (b) 49	198	171	369
1950* ...	(a) 276 (b) 253	115	250	365

* Deaths according to 6th (1948) Revision of International List.

† (a) Original; (b) corrected, except in Port Health Districts. Up to 1943 notifications are partially corrected.

Table LIV.—Acute Infectious Encephalitis: Death rates per million living in Standard Regions and Density Aggregates, 1950

Area	Death rate	Area	Death rate
ENGLAND AND WALES	3	**MIDLANDS AND EASTERN** (*contd.*)	
Conurbations	3	Conurbation:	
Areas outside conurbations: ...	3	West Midland	2
Urban areas with populations of 100,000 and over	2	Areas outside conurbation:	
Urban areas with population of 50,000 and under 100,000 ...	2	Urban areas with populations of 100,000 and over	7
Urban areas with populations under 50,000	2	Urban areas with populations of 50,000 and under 100,000 ...	6
Rural areas	3	Urban areas with populations under 50,000	12
NORTH		Rural areas	8
Regions:			
Northern...	2	**GREATER LONDON**	2
East and West Ridings ...	2		
North Western	3	**SOUTH**	
		Regions:	
Total	3	Remainder of South East ...	3
		Southern	4
Conurbations:		South Western...	3
Tyneside	7		
West Yorkshire	4	Total	3
South East Lancashire... ...	2		
Merseyside	4	Urban areas with populations of 100,000 and over	10
		Urban areas with populations of 50,000 and under 100,000 ...	5
Total	4	Urban areas with populations under 50,000	5
Areas outside conurbations:		Rural areas	7
Urban areas with populations of 100,000 and over	13	**WALES**	
Urban areas with populations of 50,000 and under 100,000 ...	5	Regions:	
Urban areas with populations under 50,000	5	Wales I and II...	3
Rural areas	13	Urban areas with populations of 100,000 and over	3
MIDLANDS AND EASTERN		Urban areas with populations of 50,000 and under 100,000.	3
Regions:		Urban areas with populations under 50,000	12
North Midland	.3	Rural areas	11
Midland	3		
Eastern	2		
Total	3		

Table LV.—Acute Infectious Encephalitis (including late effects): Death rates per million living by sex and age, 1950

Age							Death rate per million living	
							Males	Females
0– ...	...	...	...	...	...	...	12	12
5– ...	...	...	...	...	...	...	2	2
15– ...	...	...	...	...	...	...	7	5
45– ...	...	...	...	...	...	...	12	11
65 and over ...	...	...	...	...	...		17	12
All ages... ...	...	...	...	...	...		**9**	**8**

Table LVI.—Measles: Notification rates per 100,000 living and deaths per 1,000 notifications by sex and age, 1950

Age	Notifications* per 100,000 living		Deaths per 1,000 notifications*	
	Males	Females	Males	Females
0–	1,830	1,978	6·0	4·6
1–	5,532	5,493	1·2	0·8
3–	7,382	7,381	0·3	0·2
5–	4,816	4,795	0·2	0·1
10–	249	262	0·8	—
15 and over ...	11	14	1·1	1·2
All ages ...	**886**	**794**	**0·7**	**0·5**

* Corrected figures excluding cases in Port Health Districts.

Table LVII.—Measles: Notifications, deaths, corrected notifications per 100 original and deaths per 100 notifications, 1940 to 1950

Year	Number of notifications*	Number of deaths	Corrected notifications per 100 original notifications	Deaths per 100 notifications
1940... ...	409,521	857	—	0·21
1941... ...	409,715	1,145	—	0·28
1942... ...	286,341	458	—	0·16
1943... ...	376,104	773	—	0·21
1944... ...	(a) 159,041 (b) 158,479	243	99·6	(a) 0·15 (b) 0·15
1945... ...	(a) 446,828 (b) 446,796	729	99·9	(a) 0·16 (b) 0·16
1946... ...	(a) 160,493 (b) 160,402	204	99·9	(a) 0·13 (b) 0·13
1947... ...	(a) 394,190 (b) 393,787	644	99·8	(a) 0·16 (b) 0·16
1948... ...	(a) 399,593 (b) 399,606	327	100·0	(a) 0·08 (b) 0·08
1949... ...	(a) 386,231 (b) 385,935	307	99·9	(a) 0·08 (b) 0·08
1950... ...	(a) 367,921 (b) 367,725	221	99·9	(a) 0·06 (b) 0·06

* (a) Original; (b) corrected notifications, except in Port Health Districts. Up to 1943 notifications are partially corrected.

Table LVIII.—Measles: Notification and fatality rates at ages 0–14 years in Standard Regions and Density Aggregates, 1950

Area	Notification rate per 1,000 population	Deaths per 1,000 notifications	Death rate per million population
ENGLAND AND WALES ...	38	0·59	22
Conurbations ...	38	0·57	22
Areas outside conurbations	37	0·61	23
Urban areas with populations of 100,000 and over ...	41	0·55	23
Urban areas with populations of 50,000 and under 100,000 ...	41	0·97	40
Urban areas with populations under 50,000 ...	38	0·57	22
Rural areas ...	32	0·54	17
NORTH			
Regions:			
Northern ...	44	0·77	34
East and West Ridings ...	51	0·51	26
North Western ...	44	0·59	26
Total ...	46	0·61	28
Conurbations:			
Tyneside ...	52	0·70	36
West Yorkshire ...	48	0·70	34
South East Lancashire ...	47	0·69	33
Merseyside ...	44	0·52	23
Total ...	47	0·66	31
Areas outside conurbations:			
Urban areas with populations of 100,000 and over ...	?	?	20
Urban areas with populations of 50,000 and under 100,000 ...	?	?	52
Urban areas with populations under 50,000 ...	?	?	22
Rural areas ...	?	?	18
MIDLANDS AND EASTERN			
Regions:			
North Midland ...	45	0·46	21
Midland ...	40	0·87	35
Eastern ...	44	0·37	16
Total ...	43	0·60	25
MIDLANDS AND EASTERN (*contd.*)			
Conurbation:			
West Midland ...	30	0·81	24
Areas outside conurbation:			
Urban areas with populations of 100,000 and over ...	?	?	31
Urban areas with populations of 50,000 and under 100,000 ...	?	?	41
Urban areas with populations under 50,000 ...	?	?	15
Rural areas ...	?	?	25
GREATER LONDON ...	33	0·40	13
SOUTH			
Regions:			
Remainder of South East ...	28	0·76	22
Southern ...	16	0·64	10
South Western ...	22	0·48	11
Total ...	22	0·63	14
Urban areas with populations of 100,000 and over ...	?	?	16
Urban areas with populations of 50,000 and under 100,000 ...	?	?	17
Urban areas with populations under 50,000 ...	?	?	20
Rural areas ...	?	?	6
WALES			
Regions:			
Wales I and II ...	32	1·01	32
Urban areas with populations of 100,000 and over ...	?	?	21
Urban areas with populations of 50,000 and under 100,000 ...	?	?	77
Urban areas with populations under 50,000 ...	?	?	43
Rural areas ...	?	?	23

TUBERCULOSIS

Infections and Disease

Tuberculosis is an example of a disease (poliomyelitis is another) in relation to which it is especially important to distinguish between *infection*, the invasion of the body by the pathogen with the concomitant resistant and immunological reactions, and *disease*, the colonization of bacilli in tissue or bone and the production of clinical or radiological evidence of a more successful and threatening invasion. In any population in which the tubercle bacillus has been freely circulating a large proportion of the adult population will have been infected before or during adolescence but there will be a relatively small proportion with active disease. In 1949–50 it was estimated that 9–14* per cent of children aged 5 in urban areas of England and Wales were tuberculin sensitive, and could therefore be assumed to have a history of infection; by age 20 this proportion had risen to 59–74* per cent (Medical Research Council, 1952). In contrast the proportion of the population on the registers of tuberculous cases supervised by chest clinics at the end of 1950 was only 0·65 per cent. The latter measure was subject to errors of opposing sign; cured cases were sometimes lost sight of and did not get removed from the register; there were active cases in the population which were never notified or were not notified until after death (one death from tuberculosis in every six occurs in persons not notified before death). On balance notifications have been a deficient measure of the prevalence of disease. This deficiency has been considerably narrowed in recent years so far as pulmonary disease is concerned by the introduction of mass miniature radiography which has detected many unsuspected cases of active respiratory disease (at the rate of about 4 per 1,000 of the adult population) and in 1950 such cases found by mass miniature radiography in England and Wales amounted to 5,650 or 13 per cent of all notified cases of respiratory tuberculosis.

The tuberculin survey of 1949–50 revealed lower levels of tuberculin sensitivity at all ages than in an earlier survey carried out twenty years earlier (D'Arcy Hart, 1932) and lower than in the comparable subgroups of the Prophit Survey (Daniels, Ridehalgh and Springett, 1948). This had suggested that the incidence of infection was falling. The reservoir of infection might be diminishing by virtue of a reduction in the number of infectious persons or by virtue of an increase in the effectiveness of protection against bovine infection of milk; or it might be that infectious persons were under better surveillance than formerly and were surrounded by a more effective barrier of hygiene, or that they were diagnosed at an earlier stage of disease and were treated more efficiently and thus rendered non-infectious within a shorter period. Most of these factors have been operating. To the pasteurisation of milk there has been attributed a dramatic decline in non-pulmonary disease of bovine origin—the notification rate per 100,000 for non-pulmonary diseases at ages 0–14 in England and Wales has fallen from 77 in 1938 to 35 in 1950 and typing of bacilli in cases of disease occurring in recent years suggests that a smaller proportion than formerly are of bovine origin (Wilson, Blacklock, Reilly, 1953). In 1950 the proportion of cases notified in England and Wales as suffering from respiratory tuberculosis

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* The lower figure refers to urban areas south of Rugby ; the higher figure refers to urban areas in the Midlands and North, and in Wales.

who were still sputum negative, i.e. detected at a stage of minimal infectiousness was 60·3 per cent. It is estimated that twenty years ago the proportion was not higher than 40 per cent. At the end of 1950 there were 33,098 beds provided in the country for the treatment of tuberculosis compared with 26,018 in 1931 (Ministry of Health, 1936, 1953) representing a considerable expansion in treatment facilities. Snell (1951, 1953) has reported a rapidly rising rate of sputum conversion (i.e. a rising proportion of patients rendered non-infectious) as a result of improved treatment, especially chemotherapy and surgery. All this has helped to reduce the spread of infection. In one respect modern treatment has aggravated the problem of control of infectiousness, for chronically infectious cases now survive much longer than formerly to act as potential infectors.

Respiratory tuberculosis—morbidity

It is against this background that the trend of morbidity must be considered. Table LIX (page 123) shows the notification rates by age and sex for tuberculosis of the respiratory system. The intervention of mass radiography, improved chest clinic facilities and a better public attitude toward the disease has so improved the efficiency of case-finding that the rates for the years following the 1939–45 war are not comparable with those of earlier years. It is indeed doubtful whether, as the rates might at their face value suggest, the incidence of new cases of the disease is higher in 1950 than in 1938; it is more certain that the downward tendency of rates at most ages in the last two or three years is real; but even more certain that there is a long way to go before eradication of the disease is achieved.

There have been sex and age differentials in the trend. At ages under 15 notification rates are now much higher than ten years ago as a result of wider recognition of the clinical reactions to primary tuberculous infection and a greater tendency to notify such cases. Some of these cases represent dissemination of the bacilli through the blood stream with lung involvement, often with fatal consequences. The majority of these primary complexes heal uneventfully without active treatment; they are rarely comparable with the chronic pulmonary tuberculosis of adolescent and adult life that are represented by the notifications in older age groups.

The young adult is most vulnerable to pulmonary tuberculosis and the notification rate at ages 15–24 is a sensitive index of the contemporary balance of forces of infection and resistance in the community. During the war years the notification rates for both sexes in this age group rose, partly as a reflection of adverse war conditions but partly also as a result of improved case-finding and it is not possible to partition the contributions of these two factors. In males there has been some considerable improvement from the peak of 1948 when the rate was 52 per cent above the 1938 figure and in 1950, when allowance is made for better detection, it seems likely that the morbidity in this age group had reverted to the pre-war level. In females however the trend is not so favourable. The rates reached a maximum in 1948 at a figure 39 per cent above that for 1938 and the 1950 rate represents a trifling improvement. This difference in trend is not exceptional since it has always been recognized that young women, in whom the disease usually takes a more fulminating course (Springett, 1952), are even more susceptible than young men to those upward fluctuations in tuberculosis morbidity that accompany social disturbances. At ages 25–34 the general picture is much the same as at 15–24, viz. a downward trend for men with probable recovery of ground lost by the war, and persistence of raised morbidity in women.

At ages over 35 there is a sex differential in the opposite direction. In women there has been only a very slight tendency for rates of notification at older ages

to decline; the rates were already relatively low in these age groups, for most women who contract tuberculosis do so before the age of 35. In men there was a downward trend at ages 35–64 between 1943 and 1947. This trend was arrested in 1948 and 1949 but was resumed in 1950. At ages 65 and over notifications have been considerably higher since 1948 than for many years. A factor to be borne in mind is the increased attention now paid to radiological investigation of the chest in middle-aged and older men, partly a natural accompaniment of expanding facilities but partly also the effect of preoccupation with the problem of cancer of the lung. The latter influence may have affected death certification too; for any intensified search for lung tumours might also reveal evidence of chronic pulmonary tuberculosis where this was unsuspected.

Respiratory tuberculosis—mortality

Death rates from respiratory tuberculosis by sex and age are shown in Table LX (page 124). In 1950 deaths were classified on the basis of the 6th Revision of the International List and in order to show the effect of the new classification the 1949 rates have been shown according to both the 5th and 6th Revisions. The relatively minor change involved is the inclusion under respiratory tuberculosis in the new classification of pleurisy or pleural effusion without stated cause which was formerly assigned to the non-tuberculous respiratory group of causes but which is now assumed to be tuberculous. Pleural effusions without specific statement of cause is not numerically important at younger ages since death is extremely unlikely to occur before the diagnosis of tuberculosis has been confirmed or excluded but at older ages pleurisy may be mentioned on death certificates without reference to specific cause and the effect of the new classification can be seen in Table LX to have had a noticeably inflationary effect upon the rates at ages over 65.

The main feature of Table LX which overshadows all else is the rapid decline between 1947 and 1950 in mortality from respiratory tuberculosis at young and middle ages. This represents a greater acceleration in the secular decline in death rates than has hitherto been experienced. The trends are shown diagrammatically in Diagram 9 for age groups over 15. At ages up to 54 in men and 44 in women the sharp drop in the rates stands out clearly. In both men and women the rate at ages 20–24 in 1950 was less than half that of 1947; and at ages 45–54 the 1950 rates were for men three quarters and for women seven-eighths of those of 1947. Even at the older ages quoted these reductions are relatively large for so short a time; at the younger ages the pace of the decline is unprecedented. Undoubtedly chemotherapy, with streptomycin making the principal but not the only contribution, and as a further benefit of antibiotics, safer and therefore bolder chest surgery, together with many other advances in the management of tuberculous patients, have combined to produce this dramatic result.

It will be noticed that the older ages do not share this favourable trend. At ages over 65 there has been for both sexes a tendency for death-rates to rise. Whether this increase in mortality is wholly real or whether it is in part due to more accurate certification as a result of more extensive radiology, better methods of bacillary investigation and increased post-mortem discovery of long standing lesions is a matter for speculation.

In magnitude these increases are not large enough to outweigh the reductions at younger ages and as will be seen from Table LXI (page 124) the C.M.I. for respiratory tuberculosis has fallen, for men, from 1·38 in 1931 to 0·66 in 1950; and, for women, the decline has been from 1·47 to 0·58.

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Diagram 9
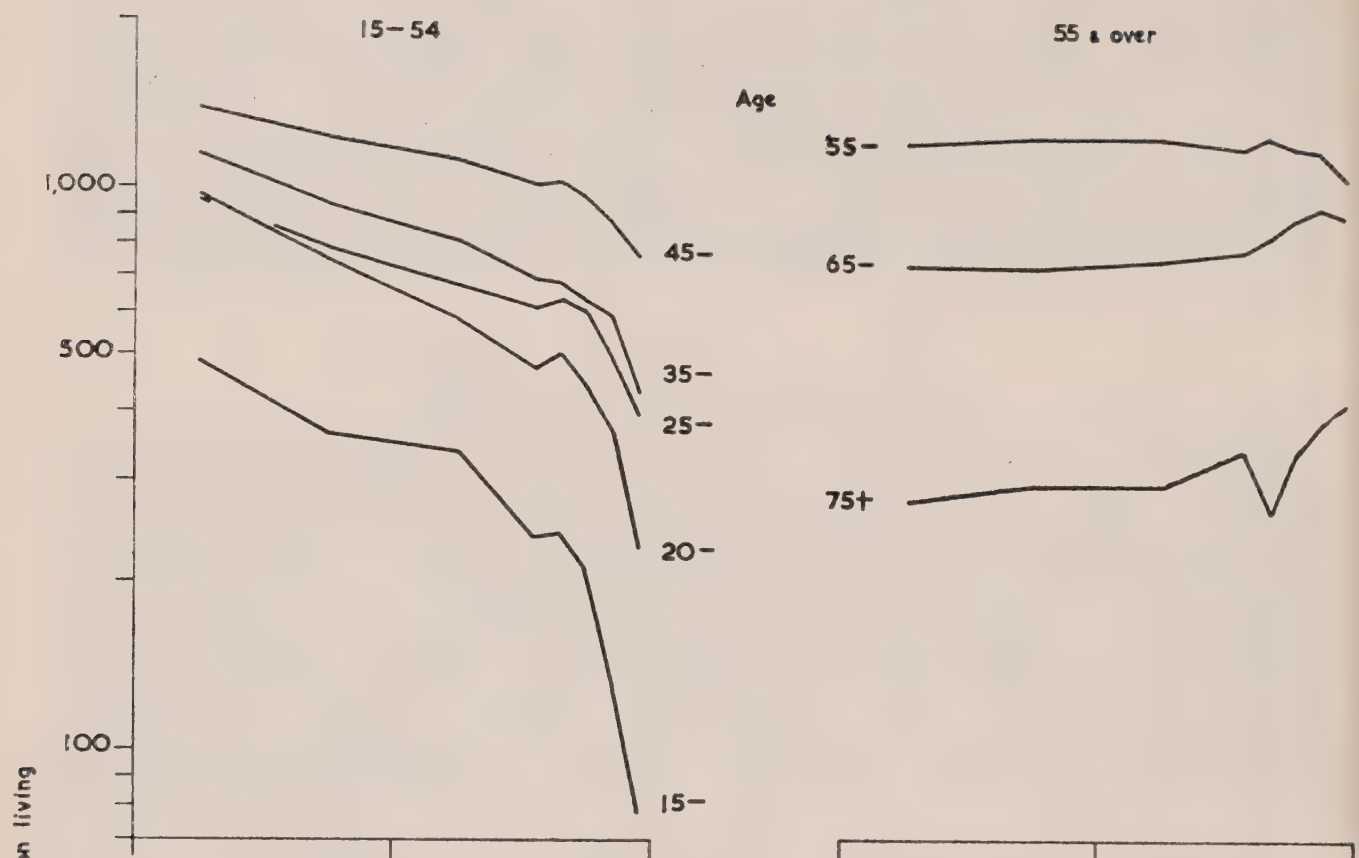
MALES
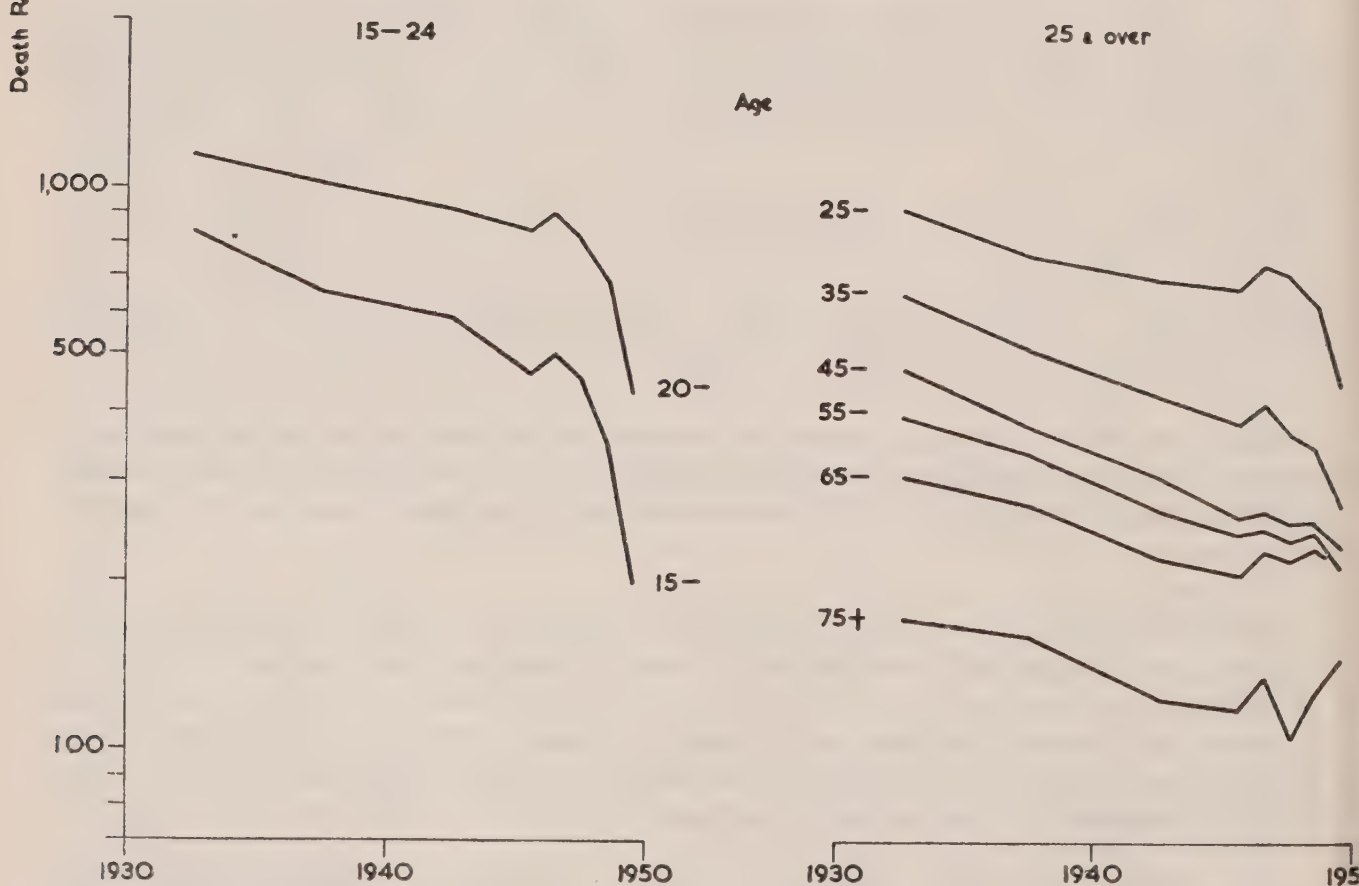
Respiratory Tuberculosis : Death rates per million living, by sex and age,
England and Wales, 1931–50

Non-respiratory tuberculosis—morbidity

The following table shows notification rates per million living by sex and age for non-respiratory disease in recent years. There has been a persistent decline in notifications at all ages and in the short period since 1938 the rates have been almost halved. The absolute incidence of non-respiratory tuberculosis is not

		Males					Females				
		All ages	0–	15–	25–	45 & over	All ages	0–	15–	25–	45 & over
1938–40	...	290	744	341	151	72	264	641	403	172	61
1941–45	...	269	698	326	148	64	261	632	413	178	63
1946 ...	...	217	569	250	123	53	210	518	334	149	47
1947 ...	...	202	518	227	114	54	196	455	317	144	51
1948 ...	...	197	505	243	99	53	199	473	333	138	46
1949 ...	...	171	423	211	93	50	174	399	304	127	40
1950 ...	...	151	350	186	93	48	164	343	288	139	39

accurately measured by the notification rate as it has been demonstrated (Stocks 1949) that notification is seriously defective (though to an indeterminate degree) and the proportion of total cases notified may vary in different parts of the country and in different age groups. Furthermore it is not possible at present to obtain an analysis of these non-respiratory notifications by the specific sites affected for which again there may be differences in the proportion notified. Nevertheless the broad downward trend is not in doubt.

Non-respiratory tuberculosis—mortality

In considering mortality from non-respiratory tuberculosis it should be borne in mind that disease which terminates fatally may do so in a form which differs from that in which it originated. A number of cases notified as non-respiratory may later develop chronic pulmonary tuberculosis and may ultimately die from that disease. Others notified with local lymphatic or skeletal lesions may suffer miliary extension of disease and may die as a result of lung or meningeal involvement. The point of infection and of original disease therefore, though of clinical importance, can only be given limited statistical treatment in national mortality tabulations.

Table LXII (page 125) gives death rates for non-respiratory tuberculosis, by age and sex, and separates tuberculosis of the meninges and central nervous system from other non-respiratory tuberculosis. Tuberculous meningitis is normally a direct manifestation of primary infection and occurs mainly in very young children. Before the advent of streptomycin it was invariably fatal (and for this reason it was often considered superfluous to notify the disease). As this condition is so closely linked to primary infection, now usually with human rather than bovine bacillus, its prevalence has often been considered to be a sensitive measure of the volume of the reservoir of infection in the community and the wartime rise in mortality in 1941–45 compared with a fall in the mortality from other forms of non-respiratory tuberculosis, is significant. The sharp fall in 1948 however does not indicate a fall in total tuberculosis morbidity and infectiousness but reflects the introduction of streptomycin, the end of the era of inevitable death from tuberculous meningitis and, thereafter, the cessation of the use of the death-rate as a valid measure of the incidence of this condition. The halving of the death-rate in such a serious condition for which there was no alternative treatment must be considered as a spectacular demonstration of the power of streptomycin to achieve the destruction of the mycobacterium

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tuberculosis, though numerically the saving of life is small compared with that in respiratory tuberculosis; for in the latter condition there had been successful alternative forms of treatment and the effect of streptomycin is seen in the acceleration of decline in mortality which had been in progress for a long period. The decline in mortality from other forms of non-respiratory tuberculosis which had already become steeper toward the end of the war of 1939–45 was given further impetus after 1948 partly by streptomycin and partly by generally improved control over tuberculous infection (including the improved care of milk) as the difficulties of the war years were left behind.

More detail is provided by Table LXI (page 124) which gives C.M.I.'s for four site groups of non-respiratory tuberculosis from 1931–50 for each sex. It will be seen that mortality from tuberculosis of the intestines, peritoneum, etc., so often associated with bovine infection, was in 1950 about one eighth of what it was twenty years earlier. Over the same period the index for mortality from tuberculosis of bones and joints has been reduced to one quarter of the initial value.

Regional distribution of respiratory tuberculosis

Table LXIII (page 126) shows the notification rates by sex and age in the standard regions and in the county boroughs and administrative counties. Respiratory disease generally and especially respiratory tuberculosis is more prevalent in the town than in the country and particularly affects those urban areas where there are larger concentrations of unskilled labour and more crowded housing conditions, but in such urban areas diagnostic facilities are often better than elsewhere and thus differences in notification rates may be accentuated. Higher average notification rates, than for England and Wales as a whole, are exhibited by the London and South Eastern region (overshadowed by the dense urbanization of London), the Northern Region and Wales. In the Northern Region there is excess in boys under 15 and men between 45 and 65, but more especially in females, particularly of the younger and more vulnerable age groups. In Wales the excess is mainly in women in all age groups above the age of 15, and only to a small extent in young men between 25 and 45. In the London and South Eastern Region the excess is, in contrast, mainly in men of all ages with younger women showing some excess but less than in the other two Regions with above average notification rates. This difference in the direction of the excess may indicate that, whereas in the North and in Wales there is real excess in morbidity, in London the excess is largely due to the extensive radiological services (especially mass radiography services) resulting in more tuberculosis being discovered—this would affect men rather more than women since the disease in men often runs a less inflammatory course and lies longer undiscovered unless brought to light by radiography. The corresponding death-rates are shown in Table LXIV (page 131). Mortality is above the average in the Northern Region and in Wales, and also in the North Western and Midland Regions which had no excess of notifications, while on the other hand the mortality in London and the South East taken as a whole was not excessive. This would seem to indicate a lack of comparability in notification rates in different parts of the country and to confirm that the higher recorded morbidity in London and the South East may be more apparent than real.

It will be seen from Table LXIV that the high mortality is mainly contributed in the Northern and North Western Regions by the Tyneside and Merseyside conurbations and in the Midlands by the West Midland conurbation; while the larger towns also contribute in some measure to these regional excesses the mortality rates for the other density aggregates, i.e. for smaller towns and rural areas, are not so markedly above national averages. In Wales, in contrast, the mortality is considerably above average in each density aggregate.

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The following summary indicates the larger towns with palpably high or low mortality rates for respiratory tuberculosis. High mortality (persons, all ages) for this purpose, has been arbitrarily defined as exceeding 500 per million; and low mortality as less than 250 per million. This summary has been restricted to county boroughs since comparisons of administrative counties are rendered difficult by the differing levels of urbanization.

Region and County Borough		Death rate from respiratory tuberculosis per million living, 1950		
		Males	Females	Persons
High mortality				
Northern ...	Tynemouth	916	523	714
	Newcastle-upon-Tyne	677	550	612
	Middlesbrough ...	704	420	562
	Gateshead	694	402	545
	South Shields... ...	708	349	523
	West Hartlepool ...	547	459	503
North Western ...	Bootle	942	721	830
	Liverpool	762	473	610
	Birkenhead	686	534	607
	Manchester	747	420	576
Midland	Walsall	849	445	646
	Smethwick	864	272	560
	West Bromwich ...	827	293	561
South Western ...	Plymouth	667	443	550
Wales	Merthyr Tydfil ...	771	625	699
Low mortality				
East and West Ridings	Halifax	385	112	240
	Wakefield	262	227	244
North Western ...	Southport	133	204	173
	Bolton	271	156	211
Eastern	Ipswich	255	220	237
London and South Eastern	Eastbourne	198	209	204
	Croydon	324	141	227
Southern	Oxford...	287	128	208
South Western ...	Bath	226	47	128

A final column in Table LXIV indicates by the ratio of notified cases to deaths the extent to which either results of treatment vary or, more probably, notification varies in completeness. It seems very likely that where diagnostic facilities, as supplemented by mass radiography, are more extensive or the

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public attitude to the disease is more alert, notification is extended to a greater proportion of minimal or less active types of lesion than elsewhere.

Regional distribution of non-respiratory tuberculosis

The notification of non-respiratory tuberculosis is not only incomplete; it varies in completeness in different parts of the country. Comparison between areas has to be carried out on the basis of mortality rates, deficient though this method may be owing to the possible geographical differential in the secular decline in the fatality of the disease. Since mortality is much heavier in children than in adults (approximately 40 per cent of the deaths were under age 15) and because deaths in children represent more recent disease than the long standing lesions involved in older persons whose deaths are assigned to non-respiratory tuberculosis, the index of prevalence chosen was the death rate at ages 0–14. Table LXV (page 136) shows the rate for each Region, County Borough and Administrative County, separated into two parts—the mortality attributable to tuberculous meningitis and to other non-respiratory tuberculosis. The numbers of deaths involved are small and few of the figures for individual areas are significant. Mortality from tuberculous meningitis is higher than average in the Northern, East and West Ridings, North Western and Midland Regions of the country and in Wales and is light in the Eastern, Southern and London and South Eastern, thus following the general distribution of respiratory tuberculosis and lending support to the suggestion already referred to, that the meningeal form of the disease could be used as an indicator of the volume of the infector pool in the country. Mortality from other forms of tuberculosis, which are associated not only with human but with bovine sources of infection, shows less variation except in the Eastern and London and South Eastern Regions where it is remarkably low.

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Table LIX.—Tuberculosis of respiratory system: Notification rates per 100,000 living by sex and age, 1938 to 1950

	All ages	0–	5–	15–	25–	35–	45–	65 and over
Males								
1938 ...	108	20	42	141	137	136	136	52
1939 ...	98	17	32	132	124	124	125	46
1940 ...	104	17	29	145	146	128	123	43
1941 ...	115	20	33	154	155	148	141	50
1942 ...	117	22	38	165	148	153	142	49
1943 ...	119	27	40	166	144	154	152	50
1944 ...	122	30	41	180	158	142	149	56
1945 ...	118	32	40	178	160	135	142	53
1946 ...	119	32	46	179	174	125	138	54
1947 ...	118	40	53	193	163	116	137	56
1948 ...	117	44	51	215	161	117	139	64
1949 ...	119	46	49	180	159	122	146	68
1950 ...	111	53	49	159	154	107	135	67
Females								
1938 ...	77	18	42	175	129	72	42	19
1939 ...	71	15	33	166	116	68	37	18
1940 ...	70	17	30	168	120	66	35	16
1941 ...	76	19	33	185	126	69	41	19
1942 ...	78	20	34	204	130	70	37	18
1943 ...	83	26	40	209	142	73	40	18
1944 ...	86	26	40	227	150	75	38	16
1945 ...	81	26	41	223	140	69	34	16
1946 ...	80	28	49	213	141	65	35	16
1947 ...	83	33	51	235	146	66	35	17
1948 ...	86	46	58	244	151	68	35	17
1949 ...	85	44	53	238	155	71	35	17
1950 ...	82	43	52	238	152	69	31	16

Table LX.—Tuberculosis of respiratory system: Death rates per million living by sex and age, 1931–45 and 1946 to 1950

	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75 and over
Males											
1931–35	85	42	64	490	963	961	1,140	1,368	1,176	723	275
1936–40	61	20	44	366	742	785	937	1,210	1,216	718	296
1941–45	76	24	34	339	581	674	811	1,114	1,203	741	295
1946	68	22	23	239	481	615	687	1,020	1,165	768	340
1947	77	15	29	241	500	632	679	1,034	1,213	812	267
1948	56	10	14	211	445	603	633	961	1,166	881	334
1949	33	6	13	127	368	496	591	869	1,153	927	380
1949*	34	7	14	127	366	497	592	869	1,159	937	400
1950*	38	9	8	78	229	395	428	751	1,024	891	411
Females											
1931–35	74	43	143	840	1,138	911	646	475	394	306	170
1936–40	55	24	98	658	1,016	759	511	377	339	272	160
1941–45	72	24	76	591	916	692	427	304	269	220	123
1946	60	25	69	468	842	662	382	261	242	207	119
1947	70	24	63	502	899	730	411	267	249	224	133
1948	52	19	53	462	812	702	367	255	235	218	105
1949	33	9	30	349	684	622	348	253	245	229	127
1949*	33	10	30	351	682	622	348	254	249	236	139
1950*	29	8	15	199	429	444	273	229	212	212	144

* According to 6th Revision of International List.

Table LXI.—Tuberculosis: Comparative Mortality Indices for various sites, 1931 to 1950

	All forms		Respiratory		Meninges and C.N.S.		Intestines, peritoneum, etc.		Bones and joints		Other forms	
	M.	**F.**	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1931	**1·39**	**1·47**	1·38	1·47	1·44	1·39	1·75	1·91	1·53	1·72	1·24	1·23
1932	**1·30**	**1·38**	1·27	1·36	1·38	1·28	1·78	1·65	1·45	1·88	1·28	1·34
1933	**1·29**	**1·34**	1·29	1·35	1·21	1·18	1·50	1·72	1·46	1·52	1·19	1·10
1934	**1·20**	**1·24**	1·19	1·24	1·22	1·22	1·34	1·45	1·41	1·56	1·07	1·12
1935	**1·13**	**1·16**	1·13	1·18	1·10	1·01	1·23	1·31	1·29	1·39	0·97	0·98
1936	**1·09**	**1·10**	1·09	1·11	1·06	1·00	1·08	1·23	1·21	1·33	1·02	0·95
1937	**1·08**	**1·12**	1·08	1·12	1·04	1·02	1·19	1·09	1·12	1·24	1·04	1·12
1938	**1·00**	**1·00**	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00
1939	**1·01**	**0·99**	1·02	1·00	0·92	0·93	0·96	0·92	1·05	1·14	0·98	0·93
1940	**1·18**	**1·08**	1·22	1·09	1·06	1·07	1·09	1·05	1·10	0·99	0·92	1·05
1941	**1·28**	**1·11**	1·36	1·09	1·42	1·37	1·27	1·00	1·03	1·11	1·32	1·12
1942	**1·19**	**0·99**	1·27	0·97	1·20	1·13	1·27	1·08	1·30	1·06	1·13	0·99
1943	**1·26**	**0·98**	1·33	0·96	1·13	1·14	1·02	0·96	1·22	0·99	1·14	0·98
1944	**1·21**	**0·92**	1·27	0·91	1·05	1·02	0·97	0·81	1·05	0·94	1·11	1·00
1945	**1·17**	**0·92**	1·23	0·91	1·01	1·04	0·93	0·71	1·01	0·81	1·08	0·92
1946	**0·94**	**0·86**	0·97	0·86	0·88	0·89	0·69	0·53	0·69	0·80	0·81	0·86
1947	**0·90**	**0·89**	0·93	0·92	0·81	0·81	0·56	0·62	0·58	0·66	0·83	0·86
1948	**0·83**	**0·82**	0·87	0·85	0·64	0·70	0·45	0·51	0·54	0·65	0·70	0·68
1949	**0·76**	**0·72**	0·80	0·77	0·55	0·56	0·39	0·37	0·39	0·48	0·64	0·49
1950	**0·62**	**0·55**	0·66	0·58	0·42	0·48	0·23	0·25	0·38	0·39	0·47	0·44

Table LXII.—Tuberculosis of meninges and central nervous system, and other non-respiratory tuberculosis: Death rates per million living by sex and age, 1938–1940, 1941–1945 and 1946 to 1950

	Males							Females						
	All ages	0–	5–	15–	25–	45–	65 & over	All ages	0–	5–	15–	25–	45–	65 & over
Tuberculosis of meninges and central nervous system														
1938–40 ...	45	289	73	41	14	6	2	40	273	77	48	11	4	2
1941–45 ...	50	308	87	51	15	6	1	45	282	90	65	14	4	1
1946... ...	40	222	80	42	11	7	3	36	199	82	52	12	3	0
1947... ...	39	215	68	39	12	8	1	34	184	66	52	11	4	1
1948... ...	31	179	47	30	9	7	3	30	166	54	44	10	3	2
1949... ...	27	153	40	26	8	5	4	24	126	40	33	10	4	1
1950... ...	20	103	32	20	7	.7	3	20	116	31	31	6	4	2
Other non-respiratory tuberculosis														
1938–40 ...	69	148	42	85	61	63	60	53	114	35	72	48	40	50
1941–45 ...	63	134	40	77	57	58	52	50	101	35	72	45	37	50
1946... ...	48	87	24	51	48	50	44	39	64	25	53	38	30	40
1947... ...	46	92	29	46	41	48	43	39	65	27	57	37	34	29
1948... ...	40	57	20	41	37	49	40	33	56	18	39	31	28	38
1949... ...	34	34	15	38	32	42	41	24	33	8	26	24	26	25
1950... ...	26	24	10	25	27	31	41	20	20	7	22	16	23	30

Table LXIII.—Respiratory tuberculosis: Notification rates per 100,000 living by sex and age, in Regions, County Boroughs and Administrative Counties, 1950

Area	Males							Females						
	0–	5–	15–	25–	45–	65 and over	All ages	0–	5–	15–	25–	45–	65 and over	All ages
England and Wales	**53**	**49**	**159**	**130**	**135**	**67**	**111**	**43**	**52**	**238**	**109**	**31**	**16**	**82**
Regions:														
Northern	67	74	159	134	158	55	121	50	83	325	131	38	16	110
East and West Ridings	62	49	122	109	127	60	98	44	65	188	83	22	14	67
North Western	54	40	130	121	143	73	105	39	41	221	102	34	19	77
North Midland	41	52	132	111	107	54	93	39	52	240	93	25	10	76
Midland	52	54	149	115	143	64	107	37	49	209	102	32	15	77
Eastern	49	50	132	119	97	54	93	39	41	167	86	29	17	63
London and South Eastern	66	49	219	153	153	87	134	57	54	269	126	34	17	93
Southern	40	41	161	124	117	54	100	32	42	193	95	27	15	68
South Western	32	42	141	132	122	44	100	27	45	220	105	29	15	74
Wales	30	46	164	152	130	76	116	37	56	310	144	38	22	105

Area	Males 0–	Males 5–	Males 15–	Males 25–	Males 45–	Males 65 and over	Males All ages	Females 0–	Females 5–	Females 15–	Females 25–	Females 45–	Females 65 and over	Females All ages
County Boroughs:														
Barnsley	111	119	194	113	97	65	120	114	193	574	104	48	—	165
Barrow-in-Furness	161	61	192	215	169	60	160	33	64	168	90	47	26	73
Bath	32	—	160	115	105	163	99	—	20	168	95	19	—	54
Birkenhead	99	56	327	218	193	131	184	44	10	291	198	69	12	120
Birmingham	75	61	211	110	164	88	123	62	35	232	101	26	16	78
Blackburn	—	—	128	85	81	69	70	—	15	79	41	6	47	30
Blackpool	44	53	85	68	124	50	80	—	55	135	44	27	7	42
Bolton	28	28	101	103	59	38	69	54	49	49	53	20	9	33
Bootle	77	97	243	224	397	183	217	22	100	431	267	70	104	191
Bournemouth	21	24	89	101	112	59	80	17	13	136	53	17	24	39
Bradford	40	33	177	126	130	53	107	35	57	183	94	21	5	62
Brighton	34	77	267	169	171	80	147	49	10	298	150	30	—	87
Bristol	67	57	141	118	130	30	103	29	74	294	93	40	7	88
Burnley	56	20	96	80	123	23	77	—	41	177	160	15	33	80
Burton upon Trent	43	30	60	108	223	—	101	—	65	299	113	32	32	92
Bury	40	—	61	114	98	—	71	91	—	144	77	34	23	51
Canterbury	—	50	57	107	145	78	86	—	100	60	158	—	—	72
Carlisle	—	22	292	170	159	72	142	100	47	324	149	55	—	106
Chester	—	65	191	111	164	49	113	25	—	202	123	46	33	87
Coventry	63	39	225	138	100	116	119	49	58	245	163	52	—	107
Croydon	46	6	119	147	190	98	121	—	45	221	97	35	22	76
Darlington	53	17	135	62	139	52	82	16	52	278	117	27	19	86
Derby	111	94	139	133	175	46	128	—	108	286	130	22	12	99
Dewsbury	—	54	147	26	82	—	54	28	—	154	38	26	—	36
Doncaster	26	—	76	133	142	125	96	—	17	134	78	21	—	52
Dudley	111	20	33	176	251	82	176	—	83	332	105	26	32	102
Eastbourne	—	—	95	142	200	90	111	173	29	108	84	—	—	36
East Ham	91	77	126	115	130	75	109	—	147	351	97	53	14	121
Exeter	—	78	317	139	190	27	148	75	20	180	79	38	34	63
Gateshead	125	163	387	171	295	171	226	71	181	537	160	43	34	171
Gloucester	69	85	242	130	153	70	134	45	67	284	103	25	25	95
Great Yarmouth	87	194	60	147	56	116	113	23	29	112	187	105	—	99
Grimsby	21	96	196	155	60	72	111	—	29	188	88	45	40	72
Halifax	73	16	36	168	118	21	96	—	50	99	93	14	—	47
Hastings	120	—	28	127	125	98	90	—	75	329	109	40	12	82
Huddersfield	38	26	143	101	87	48	83	—	—	155	81	10	32	48
Ipswich	63	68	194	192	94	81	129	22	43	196	76	15	14	61

Table LXIII.—continued.

Area	Males							Females						
	0—	5—	15—	25—	45—	65 and over	All ages	0—	5—	15—	25—	45—	65 and over	All ages
County Boroughs—*contd.*														
Kingston upon Hull	69	44	151	106	127	35	98	20	46	293	95	20	37	86
Leeds	50	41	145	136	177	89	122	52	18	196	92	23	19	67
Leicester	94	111	223	184	208	162	175	91	148	452	154	49	11	143
Lincoln	34	67	65	110	97	29	81	107	23	310	48	11	21	70
Liverpool	144	87	202	251	306	190	211	125	91	437	227	73	47	178
Manchester	77	56	149	125	171	127	124	42	45	280	91	41	5	84
Middlesbrough	182	211	164	166	226	55	179	257	193	387	175	67	44	183
Newcastle upon Tyne	53	98	257	166	223	118	168	40	122	422	188	48	18	148
Northampton	—	15	124	134	87	19	82	23	46	162	96	13	13	59
Norwich	96	25	110	106	89	51	85	40	77	69	47	44	23	49
Nottingham	97	137	292	181	210	108	183	72	100	439	147	54	22	137
Oldham	40	13	140	112	69	70	81	21	14	169	93	12	38	58
Oxford	93	61	118	107	142	127	111	—	78	240	107	48	15	93
Plymouth	42	72	249	233	220	69	173	11	77	520	165	29	16	136
Portsmouth	9	98	318	238	142	79	165	38	75	303	139	35	—	100
Preston	19	12	123	130	112	—	87	—	13	189	88	18	—	55
Reading	21	61	238	186	186	18	145	87	26	251	164	40	—	100
Rochdale	56	216	179	106	156	113	138	61	140	259	116	22	31	94
Rotherham	25	16	133	98	139	—	85	51	66	112	79	53	—	65
St. Helens	19	24	172	91	174	91	106	40	73	151	102	31	20	76
Salford	47	16	129	137	223	30	120	12	17	224	101	44	30	77
Sheffield	160	127	137	119	155	62	129	115	214	200	88	32	23	99
Smethwick	265	604	214	185	246	236	272	219	500	292	161	61	21	186
Southampton	45	93	171	98	168	37	113	60	148	209	92	32	9	89
Southend-on-Sea	91	137	185	152	134	125	141	159	67	351	73	22	15	86
Southport	38	—	20	29	89	—	37	—	—	154	80	20	22	47
South Shields	58	165	244	187	206	—	168	100	145	356	153	30	—	133
Stockport	17	—	69	83	91	48	63	17	—	61	57	15	—	29
Stoke on Trent	31	44	146	93	132	50	93	16	61	233	109	52	37	91
Sunderland	68	58	128	142	163	94	120	48	45	372	134	28	11	114
Tynemouth	—	40	248	92	225	107	128	33	42	151	189	49	27	99
Wakefield	—	—	95	43	68	37	46	—	—	—	23	25	—	13
Wallasey	22	14	215	118	144	130	113	91	74	260	133	55	38	104
Walsall	18	22	129	156	191	87	120	—	12	233	140	46	65	92
Warrington	—	—	86	102	154	—	80	30	—	127	58	42	—	47
West Bromwich	171	147	86	164	210	—	147	—	108	345	113	31	—	108
West Ham	80	16	98	110	142	104	98	96	33	199	99	42	77	83

Area	Males							Females						
	0—	5—	15—	25—	45—	65 and over	All ages	0—	5—	15—	25—	45—	65 and over	All ages
County Boroughs—*contd.*														
West Hartlepool	56	69	333	130	131	—	134	—	55	490	144	47	—	130
Wigan	—	16	146	131	163	57	106	29	—	207	109	9	—	64
Wolverhampton	—	8	96	119	181	78	99	—	9	137	88	21	—	52
Worcester	—	—	75	84	59	71	57	40	—	216	52	51	—	59
York	21	77	56	70	108	22	69	23	40	151	49	37	32	54
Cardiff	54	42	206	169	151	40	131	38	56	216	190	67	14	114
Merthyr Tydfil	—	114	205	88	202	252	145	—	119	420	221	52	59	155
Newport	—	79	183	146	112	138	120	65	95	420	100	15	18	113
Swansea	—	27	169	114	114	43	94	61	9	294	127	39	21	94
Administrative Counties:														
Bedfordshire	67	106	221	192	213	88	168	39	48	236	126	29	21	87
Berkshire	40	19	95	119	92	58	81	17	10	143	100	29	41	62
Buckinghamshire	61	33	150	117	126	67	101	45	27	220	73	19	12	62
Cambridgeshire	60	49	98	129	88	11	88	46	41	195	97	29	24	73
Cheshire	9	20	81	83	94	50	67	9	13	143	67	21	15	46
Cornwall	22	77	138	102	87	67	89	8	38	201	83	9	11	56
Cumberland	21	19	116	139	182	66	110	33	39	323	139	39	15	102
Derbyshire	16	20	65	100	68	38	63	21	19	148	66	16	11	48
Devonshire	10	12	81	135	93	34	77	22	32	125	94	32	19	56
Dorsetshire	43	20	128	91	79	38	72	9	37	206	76	29	9	59
Durham	97	82	121	123	161	58	117	42	88	347	122	37	16	113
Ely, Isle of	—	16	69	119	50	—	59	—	—	78	157	—	36	59
Essex	42	38	176	125	107	53	102	32	52	195	93	30	14	71
Gloucestershire	21	37	175	127	111	45	99	6	30	192	135	31	14	77
Herefordshire	71	85	122	129	103	42	101	38	33	92	139	26	22	67
Hertfordshire	39	23	148	92	105	69	85	40	22	177	65	24	16	56
Huntingdonshire	34	21	80	266	42	—	108	107	—	23	21	—	—	18
Kent	41	54	196	138	129	78	116	41	47	247	104	35	22	81
Lancashire	37	30	95	91	111	48	79	23	34	163	77	28	15	57
Leicestershire	38	45	78	88	84	51	71	13	34	174	68	16	—	52
Lincolnshire (Holland)	43	27	86	45	54	19	48	44	28	92	56	53	—	49
Lincolnshire (Kesteven)	35	45	209	90	111	—	91	56	94	181	149	29	—	91
Lincolnshire (Lindsey)	35	18	86	66	100	49	65	15	28	194	49	17	5	49
Middlesex	63	42	224	135	138	85	125	49	46	258	124	33	23	91
Norfolk	50	62	92	86	57	37	68	40	77	217	88	36	11	74
Northamptonshire	18	11	120	65	78	29	59	9	11	131	84	9	6	45

Table LXII.—*continued.*

Area	Males							Females						
	0–	5–	15–	25–	45–	65 and over	All ages	0–	5–	15–	25–	45–	65 and over	All ages
Administrative Counties —*contd.*														
Northumberland	36	52	172	153	78	33	103	33	67	284	104	44	20	93
Nottinghamshire	21	49	121	96	67	39	75	35	51	250	87	20	11	75
Oxfordshire	55	25	307	112	84	60	111	—	43	159	107	41	18	69
Peterborough (Soke of)	—	47	249	177	147	66	137	154	25	245	133	—	—	88
Rutland	111	63	121	37	—	—	50	111	—	396	75	45	—	91
Shropshire	16	9	81	69	73	50	56	—	25	137	67	22	17	48
Somersetshire	25	36	108	136	121	31	93	59	58	173	99	25	21	69
Southampton	36	36	132	117	112	42	89	34	26	156	94	22	10	59
Staffordshire	21	38	115	111	139	55	94	30	43	208	85	29	9	70
Suffolk, East	31	32	110	65	55	38	58	11	33	105	86	34	18	52
Suffolk, West	39	25	112	128	100	42	87	42	80	152	114	29	23	74
Surrey	11	31	202	130	108	53	103	25	38	209	95	25	12	68
Sussex, East	39	26	118	119	86	33	79	33	14	153	112	19	8	55
Sussex, West	16	18	81	83	119	51	71	34	14	134	81	28	—	47
Warwickshire	45	66	121	98	131	23	92	48	48	202	90	38	14	74
Westmorland	74	—	41	44	82	—	44	—	23	153	84	—	—	45
Wight, Isle of	—	16	112	88	96	67	73	56	69	123	67	8	34	51
Wiltshire	38	20	103	122	132	27	90	20	25	201	104	37	13	71
Worcestershire	57	14	142	134	127	50	101	30	38	140	109	23	4	63
Yorkshire (E. R.)	11	7	67	98	43	26	53	24	35	93	77	15	7	44
Yorkshire (N. R.)	19	30	58	97	109	55	67	26	47	126	91	22	8	57
Yorkshire (W. R.)	54	39	109	101	123	72	91	38	48	178	80	19	11	61
Anglesey	—	29	119	166	147	—	99	—	86	358	187	46	26	120
Brecknockshire	43	51	117	163	31	33	86	—	158	380	129	59	30	127
Caernarvonshire	43	131	254	241	191	210	196	67	86	493	166	57	10	137
Cardiganshire	—	—	—	57	48	—	26	—	—	60	13	—	21	14
Carmarthenshire	—	60	156	149	141	59	117	32	27	345	136	36	40	105
Denbighshire	69	32	77	114	129	89	94	14	17	259	138	65	25	93
Flintshire	48	67	147	134	135	28	108	17	10	168	103	11	42	62
Glamorganshire	37	42	190	159	142	85	125	49	78	383	157	33	18	123
Merionethshire	67	37	209	162	155	297	159	71	192	445	153	37	30	137
Monmouthshire	21	20	168	190	103	44	113	36	47	246	154	29	12	96
Montgomeryshire	—	61	27	76	55	36	50	—	—	133	84	71	31	61
Pembrokeshire	—	15	45	75	99	—	53	—	—	157	71	9	18	45
Radnorshire	—	71	185	224	88	74	133	—	—	229	—	—	—	29

Table LXIV.—Respiratory tuberculosis: Death rates per million living by sex and age and notifications per 100 deaths in Regions, density aggregates within Regional groups, County Boroughs and Administrative Counties, 1950

Area	Males							Females							Persons	
	0–	5–	15–	25–	45–	65 and over	All ages	0–	5–	15–	25–	45–	65 and over	All ages	All ages	Notifications per 100 deaths
ENGLAND AND WALES	**38**	**8**	**157**	**412**	**865**	**744**	**422**	**29**	**11**	**319**	**356**	**221**	**189**	**227**	**321**	**301**
Conurbations	43	7	193	436	1,004	971	489	21	11	328	382	234	196	243	360	?
Areas outside conurbations:																
Urban areas with populations of 100,000 and over	42	7	199	456	1,068	895	501	60	15	393	412	270	253	275	384	?
Urban areas with populations of 50,000 and under 100,000	58	14	185	401	876	611	415	30	28	367	389	229	206	248	328	?
Urban areas with populations under 50,000	32	9	145	404	758	640	384	31	5	307	336	202	147	207	292	?
Rural areas	25	8	84	340	551	440	282	18	11	234	261	175	169	171	227	?
NORTH																
Regions	49	10	194	477	962	737	469	38	13	427	423	223	178	259	361	262
Northern	69	17	216	613	1,012	752	517	66	18	573	512	274	179	321	418	279
East and West Riding	27	10	143	383	813	731	400	29	11	336	320	170	168	202	298	280
North Western	53	7	214	470	1,034	733	491	30	12	408	446	232	183	267	373	245
Conurbations	53	9	218	539	1,142	883	549	29	16	463	484	251	203	293	414	?
Tyneside	51	17	200	846	1,247	1,111	675	27	17	742	688	375	217	425	546	?
West Yorkshire	28	—	130	316	796	711	384	14	9	250	285	168	164	181	276	?
South East Lancashire	38	13	200	492	1,129	728	525	20	19	377	433	199	156	249	379	?
Merseyside	103	9	348	716	1,597	1,294	715	61	19	642	698	400	342	429	563	?
Areas outside conurbations:																
Urban areas with populations of 100,000 and over	51	8	264	560	945	769	505	83	17	435	382	225	231	259	377	?
Urban areas with populations of 50,000 and under 100,000	58	26	224	437	1,000	420	441	22	14	373	460	231	179	204	349	?
Urban areas with populations under 50,000	33	15	195	396	786	669	397	33	5	439	380	175	137	227	307	?
Rural areas	55	—	78	381	606	554	309	42	8	281	273	165	137	176	243	?
MIDLANDS AND EAST																
Regions	33	5	163	382	818	661	389	30	9	326	341	214	180	219	302	285
North Midland	33	13	142	383	677	650	357	28	9	424	332	198	155	222	289	295
Midland	40	3	226	468	1,097	785	490	36	10	358	418	261	201	260	373	248
Eastern	23	—	98	247	585	529	277	24	10	167	234	167	179	156	215	303
Conurbation:																
West Midland	39	6	310	530	1,305	882	575	40	12	430	493	284	168	296	431	?
Areas outside conurbation:																
Urban areas with populations of 100,000 and over	43	—	218	443	1,051	1,134	511	37	15	338	365	268	254	253	377	?
Urban areas with populations of 50,000 and under 100,000	41	12	154	296	709	860	350	23	14	416	323	218	209	233	290	?
Urban areas with populations under 50,000	26	5	159	349	656	603	340	46	—	255	304	182	127	184	259	?
Rural areas	24	4	76	291	467	344	236	8	9	242	239	144	174	156	197	?

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Table LXIV.—continued.

Area	Males 0–	Males 5–	Males 15–	Males 25–	Males 45–	Males 65 and over	Males All ages	Females 0–	Females 5–	Females 15–	Females 25–	Females 45–	Females 65 and over	Females All ages	Persons All ages	Persons Notifications per 100 deaths
GREATER LONDON	37	6	142	339	823	1,061	421	9	6	199	283	208	198	191	300	?
SOUTH	26	5	115	379	771	543	360	24	9	208	299	218	197	195	275	?
Regions																
Remainder of South Eastern	19	—	119	360	753	540	354	20	12	201	277	194	203	183	263	?
Southern	44	11	88	302	797	605	340	9	6	140	247	199	182	163	250	326
South Western	16	5	139	463	763	494	384	42	10	275	364	256	204	234	307	278
Urban areas with populations of 100,000 and over	33	10	185	452	1,158	768	521	35	—	361	482	318	255	298	404	?
Urban areas with populations of 50,000 and under 100,000	67	—	213	427	784	554	405	48	28	127	321	233	206	203	295	?
Urban areas with populations under 50,000	17	—	141	410	706	617	375	28	55	213	246	195	185	174	268	?
Rural areas	17	10	58	306	568	379	262	9	10	156	240	169	165	152	207	?
WALES	45	27	142	556	964	913	509	47	33	437	505	299	227	311	409	272
Urban areas with populations of 100,000 and over	33	24	167	462	1,254	852	545	160	45	558	611	293	343	383	461	?
Urban areas with populations of 50,000 and under 100,000	—	—	250	778	2,000	1,000	828	—	500	2,500	667	125	—	594	705	?
Urban areas with populations under 50,000	82	24	92	589	948	1,075	532	—	13	347	521	299	188	295	412	?
Rural areas	—	36	207	580	622	829	437	30	18	354	369	275	217	248	343	?
County Boroughs																
Barnsley	323	—	447	644	607	—	401	—	—	556	664	—	—	270	338	419
Barrow-in-Furness	—	—	—	749	968	895	580	—	—	241	602	352	—	292	437	267
Bath	—	—	229	96	351	816	226	—	—	—	172	—	—	47	128	580
Birkenhead	—	—	481	630	1,593	980	686	147	—	658	706	810	348	534	607	249
Birmingham	38	—	195	443	1,408	948	552	40	13	480	447	300	145	290	418	239
Blackburn	—	—	320	366	518	692	358	—	—	317	236	288	351	234	292	167
Blackpool	—	—	121	437	774	625	439	—	—	—	221	116	147	120	264	225
Bolton	—	—	183	289	588	128	271	—	—	97	267	243	—	156	211	239
Bootle	769	—	347	467	2,702	2,749	942	—	—	863	1,239	836	692	721	830	246
Bournemouth	—	—	298	593	1,250	589	596	—	—	124	96	171	178	123	324	174
Bradford	—	—	208	333	894	988	443	—	—	305	344	160	92	189	308	271
Brighton	—	—	—	338	1,119	685	443	108	—	192	214	346	134	194	307	371
Bristol	52	—	164	338	954	660	411	—	—	501	401	481	265	401	405	235
Burnley	—	—	574	320	661	455	387	952	—	599	141	77	499	201	290	272
Burton upon Trent	—	—	—	673	1,027	817	537	—	—	287	220	159	817	239	382	253
Bury	—	—	—	114	978	711	353	—	—	600	525	229	233	190	267	225
Canterbury	—	—	568	267	724	—	314	—	—	—	397	—	—	215	262	300
Carlisle	—	—	—	400	1,460	—	463	—	—	432	—	109	500	258	357	346
Chester	—	—	318	417	1,278	977	564	—	—	489	273	153	—	119	331	300
Coventry	79	—	243	503	1,100	1,853	581	—	—	190	519	416	92	336	461	245
Croydon	185	—	265	101	646	984	324	—	—	521	124	235	163	141	227	428
Darlington	—	167	169	543	1,094	524	518	328	172	—	78	179	—	158	334	252
Derby	—	—	—	442	483	910	334	—	—	—	372	166	235	204	268	423

Table LXIV.—*continued.*

Area	Males							Females							Persons	
	0–	5–	15–	25–	45–	65 and over	All ages	0–	5–	15–	25–	45–	65 and over	All ages	All ages	Notifications per 100 deaths
County Boroughs—*contd.*																
Dewsbury	—	—	588	258	492	410	309	—	—	617	128	397	285	251	279	160
Doncaster	—	167	303	582	912	938	529	278	—	671	696	207	—	372	451	165
Dudley	—	—	653	196	739	816	378	—	—	415	948	396	646	493	436	318
Eastbourne	—	—	318	—	668	—	198	—	—	269	239	209	306	209	204	333
East Ham	—	—	668	465	914	1,496	330	192	—	250	203	197	413	207	267	430
Exeter	—	—	443	742	1,305	274	566	—	—	180	437	480	—	267	408	254
Gateshead	—	—	299	1,098	1,557	855	694	—	—	457	800	360	168	402	545	363
Gloucester	—	—	302	267	697	1,052	590	357	—	203	413	254	249	266	424	268
Great Yarmouth	—	—	—	353	561	1,158	365	—	—	844	400	299	—	293	327	324
Grimsby	—	137	—	491	797	1,195	447	—	—	314	—	91	402	105	275	331
Halifax	—	—	—	127	677	621	385	—	—	166	267	68	—	112	240	292
Hastings	—	—	—	456	941	491	313	—	—	—	544	99	491	265	286	300
Huddersfield	—	—	274	257	682	159	334	—	—	259	403	209	106	219	274	236
Ipswich	—	—	91	476	513	604	255	—	—	140	380	228	289	220	237	396
Kingston upon Hull	—	44	202	402	1,206	620	495	66	—	766	553	307	124	358	425	216
Leeds	91	—	312	553	1,097	937	486	—	31	175	336	257	258	223	349	268
Leicester	—	—	244	640	1,239	1,541	624	—	—	402	341	307	162	250	429	369
Lincoln	—	—	259	825	973	861	520	—	—	221	676	337	426	365	442	171
Liverpool	100	16	229	708	1,767	1,365	762	26	32	701	830	366	396	473	610	318
Manchester	62	21	311	675	1,711	1,269	747	32	21	770	747	333	72	420	576	179
Middlesbrough	130	—	282	839	1,682	1,279	704	135	—	793	474	491	441	420	562	322
Newcastle upon Tyne	76	—	280	319	1,221	1,181	677	—	51	1,159	820	481	183	550	612	258
Northampton	—	—	74	528	871	573	409	—	—	443	255	—	—	126	262	268
Norwich	192	—	160	506	1,192	505	501	—	128	—	292	249	113	173	330	200
Nottingham	139	—	148	505	1,187	1,251	574	72	—	832	404	332	329	354	460	345
Oldham	200	152	370	119	694	174	398	—	137	261	436	58	506	252	322	215
Oxford	—	—	376	726	756	1,020	287	—	—	218	126	80	297	128	208	491
Plymouth	105	—	—	595	1,524	692	667	—	—	603	842	288	412	443	550	279
Portsmouth	—	—	166	378	1,097	989	543	—	—	264	590	141	198	264	394	331
Preston	185	—	215	349	595	199	341	—	—	252	493	181	133	237	287	246
Reading	—	—	242	529	1,087	735	478	—	—	376	282	202	125	197	332	367
Rochdale	—	—	124	454	1,465	681	607	—	—	173	508	148	308	251	419	274
Rotherham	250	—	—	626	1,176	563	494	—	—	372	237	106	252	169	333	225
St. Helens	—	80	166	669	869	1,365	521	—	—	581	300	229	202	283	403	226
Salford	116	—	371	436	1,741	1,493	759	400	—	321	396	311	100	247	494	198
Sheffield	—	—	242	805	840	707	416	—	—	323	282	198	298	208	310	366
Smethwick	—	—	124	364	1,877	883	864	—	—	364	507	306	—	272	560	407
Southampton	—	—	779	143	1,485	619	524	—	—	—	220	368	273	182	349	288
Southend-on-Sea	—	—	163	98	1,095	1,372	502	—	—	219	129	45	291	119	293	378
Southport	385	—	201	—	197	—	133	—	—	386	240	336	—	204	173	247
South Shields	—	—	116	1,070	1,153	1,437	708	200	—	459	613	221	327	349	523	286

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Table LXIV.—continued.

Area	Males							Females							Persons	
	0–	5–	15–	25–	45–	65 and over	All ages	0–	5–	15–	25–	45–	65 and over	All ages	All ages	Notifications per 100 deaths
County Boroughs—contd.																
Stockport	—	—	115	463	1,272	321	498	—	—	243	309	50	101	145	312	144
Stoke on Trent	—	—	141	534	1,455	1,096	578	—	51	152	485	488	814	368	472	195
Sunderland	114	—	473	826	1,192	1,342	688	119	76	621	434	234	212	314	498	234
Tynemouth	—	—	—	816	2,250	2,140	916	—	—	865	794	611	265	523	714	158
Wakefield	—	—	238	107	407	1,110	262	227	—	503	229	250	286	227	244	120
Wallasey	—	—	330	693	1,354	1,081	668	189	—	458	126	138	256	179	405	267
Walsall	—	—	471	1,113	1,744	868	849	—	—	612	873	230	325	445	646	164
Warrington	488	—	287	392	772	658	348	—	154	362	333	315	—	224	286	222
West Bromwich	—	—	75	1,232	1,104	1,553	827	—	—	150	527	306	237	293	561	228
West Ham	—	—	525	656	1,239	1,193	562	—	—	153	419	260	109	216	388	232
West Hartlepool	—	—	163	558	1,439	—	547	—	—	565	770	593	258	459	503	262
Wigan	—	—	261	307	1,119	568	424	—	—	518	782	270	223	389	407	209
Wolverhampton	—	—	251	692	1,475	621	629	—	—	515	442	259	—	264	444	168
Worcester	213	—	—	315	1,189	708	467	227	133	962	312	256	239	308	385	150
York	—	—	111	507	998	883	481	283	124	—	303	75	159	163	317	194
Cardiff	—	—	228	245	1,293	907	466	—	476	498	616	412	433	439	452	271
Merthyr Tydfil	—	—	—	766	1,886	631	771	—	—	2,473	699	130	—	625	699	214
Newport (Mon.)	—	—	—	549	1,526	919	601	—	—	381	500	223	177	273	434	268
Swansea	143	89	338	488	1,139	994	580	—	—	184	617	241	318	301	439	214
Administrative Counties:																
Bedfordshire	—	—	98	163	291	656	190	—	—	100	169	187	105	121	155	819
Berkshire	—	49	47	174	623	576	259	—	—	153	214	260	204	170	213	336
Buckinghamshire	—	—	79	220	497	668	255	—	—	—	101	149	40	71	161	506
Cambridgeshire	—	—	55	117	548	455	205	—	—	170	242	48	163	128	167	483
Cheshire	—	—	99	248	646	578	302	—	—	82	190	108	110	108	201	279
Cornwall	103	—	46	667	820	823	491	—	—	140	207	213	217	163	318	224
Cumberland	33	—	58	632	1,076	757	514	326	66	875	631	231	226	414	464	229
Derbyshire	—	40	39	341	459	635	280	34	—	291	245	157	106	163	222	251
Devonshire	—	—	162	543	609	406	373	54	64	328	267	162	190	194	278	237
Dorsetshire	256	—	58	524	540	376	347	89	53	56	271	235	130	173	255	256
Durham	118	15	128	475	925	828	445	50	—	463	537	267	184	307	377	305
Ely, Isle of	—	—	—	223	695	—	219	—	—	155	248	—	360	137	179	331
Essex	14	—	133	340	657	674	337	44	10	218	286	199	167	186	260	331
Gloucestershire	179	—	172	455	597	450	335	—	—	177	272	253	173	183	257	341
Herefordshire	77	—	333	294	811	708	405	—	—	—	174	65	443	124	261	318
Hertfordshire	345	—	50	211	517	651	253	—	—	249	217	105	130	138	194	361
Huntingdonshire	—	—	—	197	141	558	179	—	—	232	213	405	—	182	181	350
Kent	29	—	163	412	783	579	387	30	19	267	369	190	187	215	297	328
Lancashire	12	—	116	328	776	502	352	24	7	333	337	181	168	209	278	243
Leicestershire	—	—	39	311	705	318	286	—	84	312	329	211	98	210	248	248

Table LXIV.—continued.

Area	Males 0–	5–	15–	25–	45–	65 and over	All ages	Females 0–	5–	15–	25–	45–	65 and over	All ages	Persons All ages	Notifications per 100 deaths
Administrative Counties—*contd.*																
Lincolnshire (Parts of Holland)	—	—	—	128	361	192	134	—	—	262	486	357	—	255	194	250
Lincolnshire (Parts of Kesteven)	—	—	—	263	518	299	223	—	—	121	343	361	—	195	209	435
Lincolnshire (Parts of Lindsey)	142	—	—	263	414	304	227	—	—	496	300	224	153	222	224	254
Middlesex	11	13	90	275	690	757	335	22	7	177	239	163	194	164	245	437
Norfolk	—	—	128	255	544	415	268	—	—	92	120	159	341	132	200	356
Northamptonshire	—	—	168	416	710	357	344	—	—	459	245	123	58	162	252	206
Northumberland	—	32	120	593	521	237	364	—	—	338	295	201	120	194	279	352
Nottinghamshire	—	—	267	404	522	561	331	—	32	633	489	141	177	282	306	245
Oxfordshire	—	—	277	201	672	480	279	—	—	93	247	102	89	119	198	452
Peterborough (Soke of)	—	—	171	197	401	657	217	—	—	223	102	—	242	91	153	730
Rutland	—	—	—	—	1,508	—	302	85	—	792	—	446	—	201	252	280
Shropshire	—	—	143	343	628	355	298	—	—	219	335	156	115	180	237	218
Somersetshire	—	30	159	366	520	233	279	—	—	166	265	282	130	184	229	350
Southampton	71	—	81	303	753	584	337	27	—	179	292	190	191	176	253	291
Staffordshire	26	—	237	397	841	788	404	—	—	465	423	270	140	269	337	244
Suffolk, East	—	—	138	410	467	154	255	—	—	75	343	298	243	210	232	236
Suffolk, West	—	—	125	183	231	425	174	—	—	277	—	214	232	121	147	547
Surrey	—	—	86	326	629	679	328	66	—	93	192	215	148	144	230	365
Sussex, East	81	—	—	357	459	569	285	—	—	106	145	97	139	101	184	357
Sussex, West	45	—	163	284	735	405	327	—	—	215	293	241	184	195	255	226
Warwickshire	370	—	121	298	936	328	351	—	—	128	239	104	316	150	249	334
Westmorland	—	222	407	444	410	834	437	—	—	219	421	107	—	169	296	150
Wight, Isle of	—	—	80	374	768	335	249	—	88	353	148	303	563	257	243	252
Wiltshire	—	34	79	374	780	329	334	—	84	210	328	115	296	102	262	306
Worcestershire	—	67	73	421	724	500	353	66	—	113	335	185	40	161	255	321
Yorks., East Riding	—	—	154	393	343	529	260	65	—	77	200	210	135	140	199	243
Yorks., North Riding	14	—	154	506	776	329	373	29	—	461	349	134	82	205	287	215
Yorks., West Riding	—	—	88	297	710	756	336	—	9	330	273	108	148	169	251	303
Anglesey	—	—	—	302	735	—	248	—	—	325	287	153	1,047	309	280	393
Brecknockshire	—	—	468	628	154	668	358	—	—	—	646	589	—	326	342	311
Caernarvonshire	—	119	121	1,023	1,630	2,518	1,012	—	—	123	388	172	297	211	589	280
Cardiganshire	—	—	—	424	480	1,107	378	—	—	—	270	387	206	211	292	69
Carmarthenshire	154	86	149	496	1,129	711	537	159	88	266	348	270	301	265	401	276
Denbighshire	—	—	85	572	518	1,228	428	—	84	192	244	232	83	172	297	314
Flintshire	—	—	315	910	706	141	488	—	—	315	419	401	105	271	377	224
Glamorganshire	92	—	53	597	848	991	479	32	—	726	636	359	185	393	437	284
Merionethshire	—	—	—	810	1,550	849	689	—	—	808	382	730	—	391	534	276
Monmouthshire	—	82	157	474	975	886	480	—	—	186	336	134	182	171	330	318
Montgomeryshire	—	—	—	151	—	—	42	—	—	—	337	532	—	219	129	433
Pembrokeshire	—	—	301	302	594	442	312	—	—	—	790	188	356	314	313	157
Radnorshire	—	—	—	640	441	—	284	—	—	—	370	—	—	98	193	425

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Table LXV.—Death rates per million living at ages 0–14 by sex from tuberculous meningitis and other non-respiratory tuberculosis in Regions, County Boroughs and Administrative Counties, 1950

Area	Males Tuberculous meningitis	Males Other non-respiratory tuberculosis	Females Tuberculous meningitis	Females Other non-respiratory tuberculosis
England and Wales	**59**	**15**	**64**	**12**
Regions:				
Northern	102	21	78	25
East and West Ridings	72	17	75	18
North Western	77	18	89	14
North Midland	56	13	53	16
Midland	70	23	81	10
Eastern	38	9	30	3
London and South Eastern	35	7	37	7
Southern	37	24	43	—
South Western	33	18	83	16
Wales	97	20	94	17
County Boroughs:				
Barnsley	105	—	—	—
Barrow in Furness	—	125	127	—
Bath	—	—	234	—
Birkenhead	169	—	62	—
Birmingham	52	22	—	—
Blackburn	—	—	86	—
Blackpool	—	—	—	—
Bolton	56	—	—	—
Bootle	—	—	—	—
Bournemouth	—	—	101	—
Bradford	130	—	128	—
Brighton	184	—	21	—
Bristol	41	41	361	67
Burnley	349	—	192	—
Burton upon Trent	—	—	169	21
Bury	—	—	—	—
Canterbury	—	137	143	169
Carlisle	—	385	—	—
Chester	98	—	136	—
Coventry	—	—	77	—
Croydon	—	—	—	—
Darlington	204	—	—	—
Derby	189	—	—	—
Dewsbury	—	—	—	—
Doncaster	—	130	—	—
Dudley	130	—	—	—
Eastbourne	175	—	—	—
County Boroughs—*contd.*				
East Ham	—	—	—	—
Exeter	211	70	147	—
Gateshead	—	—	274	137
Gloucester	169	—	—	—
Great Yarmouth	83	—	—	—
Grimsby	—	—	200	88
Halifax	—	—	—	—
Hastings	154	154	—	—
Huddersfield	—	83	161	—
Ipswich	130	—	87	—
Kingston upon Hull	72	—	81	—
Leeds	—	—	37	—
Leicester	115	135	99	—
Lincoln	74	29	141	10
Liverpool	—	12	169	—
Manchester	89	—	52	—
Middlesbrough	175	—	219	55
Newcastle upon Tyne	75	—	124	124
Northampton	28	88	—	—
Norwich	79	—	78	93
Nottingham	—	—	57	—
Oldham	—	—	—	83
Oxford	—	—	—	—
Plymouth	86	86	95	90
Portsmouth	76	38	136	—
Preston	—	—	—	—
Reading	—	115	154	—
Rochdale	73	—	—	—
Rotherham	—	192	120	—
St. Helens	69	—	100	100
Salford	—	—	227	—
Sheffield	46	34	99	99
Smethwick	62	—	89	18
Southampton	133	—	119	—
Southend-on-Sea	153	—	194	—
Southport	65	—	65	—
South Shields	90	—	139	—
Stockport	133	—	79	—
Stoke on Trent	—	—	63	—
Sunderland	—	—	93	—

Table LXV.—*contd.*

Area	Males Tuberculous meningitis	Males Other non-respiratory tuberculosis	Females Tuberculous meningitis	Females Other non-respiratory tuberculosis
County Boroughs—*contd.*				
Tynemouth	244	122	—	—
Wakefield	—	—	—	—
Wallasey	—	—	—	—
Walsall	—	—	—	—
Warrington	—	—	—	—
West Bromwich	47	—	96	—
West Ham	106	106	148	111
West Hartlepool	202	101	111	53
Wigan	410	—	211	—
Wolverhampton	—	—	160	—
Worcester	80	—	—	—
York	36	36	—	—
Cardiff	—	—	—	—
Merthyr Tydfil	323	—	299	—
Newport (Mon.)	110	—	170	57
Swansea	—	—	—	—
Admin. Counties:				
Bedfordshire	28	61	—	—
Berkshire	30	23	63	—
Buckinghamshire	46	59	48	—
Cambridgeshire	79	11	35	35
Cheshire	28	—	118	—
Cornwall	197	12	91	26
Cumberland	25	19	40	—
Derbyshire	57	—	75	—
Devonshire	63	—	29	9
Dorsetshire	99	—	103	—
Durham	198	67	70	15
Ely, Isle of	28	—	—	—
Essex	59	—	41	12
Gloucestershire	—	11	69	9
Herefordshire	34	9	—	—
Hertfordshire	76	—	85	85
Huntingdonshire	148	83	72	—
Kent	83	—	—	—
Lancashire	68	—	—	—
Leicestershire	—	—	—	—
Lincolnshire (Parts of Holland)	—	—	—	—
Lincolnshire (Parts of Kesteven)	—	—	—	—
Admin. Counties—*contd.*				
Lincolnshire (Parts of Lindsey)	110	28	87	—
London	33	3	41	13
Middlesex	29	4	21	9
Norfolk	95	—	50	—
Northamptonshire	68	20	62	21
Northumberland	80	16	84	17
Nottinghamshire	—	—	—	—
Oxfordshire	—	—	—	—
Peterborough, Soke of	—	—	—	—
Rutland	30	14	31	—
Shropshire	55	39	160	—
Somersetshire	77	77	44	20
Southampton	39	21	100	—
Staffordshire	—	28	42	40
Suffolk, East	48	35	163	—
Suffolk, West	56	—	22	—
Surrey	70	—	88	—
Sussex, East	139	101	55	—
Sussex, West	—	24	—	—
Warwickshire	42	21	132	—
Westmorland	84	84	44	—
Wight, Isle of	23	47	49	—
Wiltshire	59	5	84	—
Worcestershire	179	—	545	—
Yorkshire, East Riding	161	161	167	—
Yorkshire, North Riding	76	—	—	—
Yorkshire, West Riding	221	—	—	22
Anglesey	—	—	—	—
Brecknockshire	126	—	106	—
Caernarvonshire	77	—	64	—
Cardiganshire	—	—	119	—
Carmarthenshire	96	—	250	196
Denbighshire	—	60	80	57
Flintshire	—	—	101	—
Glamorganshire	—	34	—	24
Merionethshire	—	—	—	—
Monmouthshire	—	—	—	—
Montgomeryshire	—	—	—	—
Pembrokeshire	—	—	—	—
Radnorshire	—	—	—	—

NEOPLASMS

Classification of Neoplasms

Each variety of tissue in the body can give rise to benign or malignant tumours of its own kind, and the fundamental classification of tumours in pathology is therefore histogenic. When a neoplasm is removed at operation or at necropsy, part of the growth is examined under the microscope to determine the type of tissue from which the cells originated and the probability of malignancy; this is not always easy, and in many cases the parent tissue or the degree of malignancy remains unknown or in dispute. But in clinical practice it may not be possible to verify the type of tumour by microscopic examination ; in any case the anatomical site of the primary tumour is of great importance —among other things it is closely related to the ease of diagnosis, the method of treatment, and the likelihood of further spread. Moreover, in research work directed to finding the causes of neoplasm interest is often focused on the different irritants to which various parts of the body are exposed and the possible relationship between these and the frequency of neoplasm in particular organs.

Tumours are accordingly classified in the first instance by *organ* or *site* for the purposes of mortality statistics. The conditions regarded as neoplasms are assigned to one or other of the rubrics 140 to 239 in the International Classification of Diseases and Injuries (6th Revision). Neoplasms are classified as *malignant* (rubrics 140–205) if they are so described or if they appear in a list of varieties assumed to be malignant. There is a corresponding list of varieties which are considered to be *benign*; these are coded to rubrics 210–229. The remaining rubrics, 230–239, comprise neoplasms of unspecified variety; they are usually grouped with benign rather than malignant tumours. Neoplasms of the lymphatic and hæmatopoietic tissues are generally malignant in behaviour and it is now conventional to group them with the malignant tumours.

The word " cancer " popularly denotes any type of malignant growth or tumour ; " cancer " will be used here, in accordance with international definition, as a convenient synonym for *malignant neoplasms* including Leukæmia, Hodgkin's disease, Sarcoma and all other varieties classified as malignant or grouped with the malignant neoplasms in the International List and excluding any conditions not so classified.

Neoplasms of Lymphatic and Hæmatopoietic Tissues. In the 6th Revision of the International List certain diseases affecting lymphatic and hæmatopoietic tissues were classified with the neoplasms for the first time. Lymphatic and hæmatopoietic tissue (which includes the lymph nodes, splenic tissue, and bone-marrow tissue) can be regarded as a single system of cells. Even though the constituent elements are scattered throughout various organs of the body, there is an intimate relationship between them because of their functional activity in making and destroying blood cells, in inflammatory processes and in immunity mechanisms.

Conditions classified as neoplastic which affect lymphatic and hæmatopoietic tissue are set out below. The order in which they are arranged is arbitrary,

chosen for convenience in discussing classification changes between the present International List and its predecessors.

    (1) **Leukæmias.**

    (2) **Multiple myeloma.**

    (3) **Hodgkin's disease.**

    (4) **Lymphosarcoma; reticulosarcoma; malignant lymphoma; all other primary malignant neoplasms of lymphoid tissue at *any* site; all malignant neoplasms of the spleen and of the bone marrow, and chloroma.**

    (5) **Benign lymphoma; lymphoma unqualified; follicular lymphoid reticulosis; reticuloses not elsewhere classified whether benign or malignant; and benign or unspecified neoplasms of the bone marrow.**

    (6) **Mycosis fungoides.**

The six groups are sometimes collectively referred to as the " Reticuloses " and are classified with the malignant neoplasms for statistical purposes, even though Group 5 contains certain tumours (for example some of the follicular lymphomas) which may be described or regarded as benign.

The conditions included in Groups 2 and 4 above together with reticuloses specified as malignant were classed as malignant tumours in the 5th Revision of the International List, but were not individually distinguished. Conditions included in Groups 1 and 3 were separately shown in each of the International Lists used in England and Wales since 1910 but never previously classed as malignant tumours. The number of persons dying from Hodgkin's disease and Leukæmia in former years can therefore be identified in the published tables. (In the 5th Revision Hodgkin's disease appeared in the " Infective Diseases " section under the title " Pernicious lymphogranulomatosis ", and the Leukæmias appeared with " Diseases of the Blood ").

Conditions in Groups 5 and 6, however, (with the exception of reticuloses described as malignant which appeared in the rubric titled " Cancer of Other or Unspecified Organs—55d ") were neither classed as malignant tumours nor distinguished separately.

    (*a*) Group 5.—Benign and unspecified lymphomas; reticulosis unqualified and bone-marrow tumours were assigned by the 5th Revision along with several other conditions to a group of miscellaneous " Non-malignant Tumours (56) ", and conditions described by the term follicular lymphoid reticulosis or one similar—the majority of conditions in Group 5—to an even more varied group titled " Other General Diseases (66) ".

    (*b*) Group 6.—Mycosis Fungoides, as its name suggests, was believed to be a fungus-like infection until recently; in the 5th Revision it was coded, along with actinomycosis, coccidioidosis, etc., to " Mycoses (43) ".

Of the deaths in 1950 from neoplasms of the lymphatic and hæmatopoietic tissues 97 per cent were accounted for by conditions in Groups 2 and 4 (which have always been regarded as malignant neoplasms) and conditions in Groups 1 and 3 (which though not regarded as malignant neoplasms can be identified in published tables as far back as 1911). Only 103 deaths—3 per cent—were attributed to conditions in Groups 5 and 6; of these only 8 were at ages under 15. It is therefore possible to follow in retrospect the trend of mortality from cancer as at present defined without appreciable error by simply adding deaths from Hodgkin's disease and the Leukæmias to those classified at the time as cancer.

While the net result of these classification changes between the 5th and 6th Revisions has been to increase the total number of deaths assigned to cancer by about 3 per cent, the increase is considerably more substantial at younger than at older ages, due to the relatively greater prevalence of Hodgkin's disease and Leukæmias in the earlier years of life, as shown in the following table.

Age group	Deaths from Cancer (Malignant Neoplasms) in 1949					
	* 5th Revision (rubrics 45–55)	† 6th Revision (rubrics 140–205)	Net increase by 6th Revision			Percentage increase by 6th Revision
			Number of deaths	Leukæmia and Hodgkin's disease	Remainder	
0–	36	62	26	24	2	72
1–	186	349	163	157	6	88
5–	175	318	143	143	—	82
15–	297	483	186	178	8	63
25–	953	1,190	237	225	12	25
35–	3,899	4,226	327	305	22	8
45–	10,790	11,144	354	348	6	3
55–	19,156	19,630	474	445	29	2
65–	26,071	26,528	457	420	37	2
75 and over..	19,100	19,274	174	155	19	1
All ages ...	80,663	83,204	2,541	2,400	141	3

* Table 21, Part I, 1949 (excluding non-civilians).
† Table 3, Appendix C, Text, 1948–49 (excluding non-civilians).

An important consequence of treating lymphatic tissue as a single cell-system is that reticulosarcomas of bone, and lymphosarcomas or other primary neoplasms of lymphoid tissue at specified sites (such as tonsil, tongue, intestine, mesentery, and retroperitoneum) are no longer coded to the organ containing the lymphoid tissue.

Changes in the 6th Revision as compared with the 5th Revision affecting other sites and site groupings can be appraised by studying Table 2 in Appendix C to the 1948–49 Text and by comparing Table 3 in the same appendix with Table 21, Part 1, 1949. In these, the deaths in 1949 are tabulated according to the 6th and 5th Revisions respectively.

Mortality from Cancer and other Neoplasms in 1950

Mortality from Neoplasms. Of the deaths in England and Wales during 1950, 87,274 were attributed to neoplasms. In only about one per cent— 1,064 deaths—were benign neoplasms implicated; in another one per cent— 940 deaths—it remained uncertain whether the neoplasm was malignant. About a quarter of the fatal benign neoplasms and four-fifths of the fatal unspecified neoplasms arose in the central nervous system; with this exception, deaths from benign and unspecified neoplasms are relatively few. The rest of the chapter will be concerned with mortality from cancer, i.e. malignant neoplasms, as a group and individually. In the case of brain and other cerebro-spinal tumours, however, it is useful for certain purposes to treat all types of neoplasm together, whether malignant, benign or unspecified; a composite rate is given in Table LXX (page 152).

Mortality from Cancer as a whole. The death rate from cancer per million living is at its lowest between the ages of 5 and 14: it then becomes progressively greater with age. The table which follows shows (i) how many males and females in every million died from cancer in 1950 at various ages, (ii) how many died from other causes, and (iii) what proportion of total mortality at each age was due to cancer.

	Males			Females		
	Death rate per million living		Percentage mortality due to cancer	Death rate per million living		Percentage mortality due to cancer
	Cancer (140–205)	All other causes of death		Cancer (140–205)	All other causes of death	
0–	64	33,711	0	82	25,604	0
1–	115	1,308	8	99	1,174	8
5–	62	595	9	56	415	12
15–	100	1,113	8	60	885	6
25–	177	1,512	10	194	1,254	13
35–	549	2,369	19	685	1,634	30
45–	2,066	6,199	25	1,863	3,436	35
55–	5,275	17,240	23	3,706	8,903	29
65–	10,324	43,004	19	6,695	28,002	19
75 and over...	15,820	120,938	12	11,308	103,489	10

The relative frequency with which people die from cancer at different periods of life can also be visualized by putting the facts another way round and showing the average size of population required at different ages to produce one cancer death. This is done in the following table which shows in round figures the average number of men or women at different ages one would have had to count at the beginning of 1950 before reaching a person who was going to die from cancer within twelve months.

Age group	Chances of dying from cancer (140–205) in 1950 at the ages stated		Chances of dying from other causes in 1950 at the ages stated	
	Males	Females	Males	Females
0–	1 in 15,522	1 in 12,179	1 in 30	1 in 39
1–	,, 8,659	,, 10,116	,, 764	,, 852
5–	,, 16,188	,, 17,864	,, 1,679	,, 2,412
15–	,, 10,007	,, 16,566	,, 899	,, 1,130
25–	,, 5,642	,, 5,144	,, 661	,, 797
35–	,, 1,821	,, 1,461	,, 422	,, 612
45–	,, 484	,, 537	,, 161	,, 291
55–	,, 190	,, 270	,, 58	,, 112
65–	,, 97	,, 149	,, 23	,, 36
75 and over ...	,, 63	,, 88	,, 8	,, 10

The last table but one showed that the proportion of total mortality due to cancer was highest at 45–54. This is because after the age of 50 the death rate from causes such as heart disease rises with markedly greater rapidity than the death rate from cancer, so that cancer accounts for a progressively smaller *proportion* of the total deaths.

Mortality from Cancer by Site. The malignant neoplasm section of former International Lists specified relatively few sites and the Text section of the Annual Review since 1900 has shown the deaths from cancer according to a more extensive site breakdown. The classification of neoplasm by site in the

6th Revision is more detailed than any of its predecessors and is likely to be quite sufficient in this respect for most purposes. It is used in its full extent and by detailed age in Table 17 (Part I) which now includes deaths of non-civilians registered in England and Wales.

Table LXX shows the mortality in 1950 per million males and females at different ages from primary cancer at various sites according to the 6th Revision.

Certain sub-divisions additional to those in the 6th Revision are distinguished in coding and are incorporated on the machine cards; among other things, this enables the site-groupings used in former years to be reconstructed where desired.

A supplement to Table 17 in Part I giving the deaths classed to each of these sub-divisions by age and sex for 1950 and following years will be published as a regular feature in future Texts.

Mortality from Cancer by Histological Type. The information which the practitioner gives to the Registrar General on the death certificate or in his reply to a request for further details enables deaths from cancer to be coded according to a simple histological classification—whether carcinoma, sarcoma, glioma, " reticuloses ", or undefined cancer. The number of deaths classed in 1950 to each of these five groups and the corresponding rates per million population are shown in Table LXXII (page 156).

Mortality from Cancer by Region and Population Density. Table LXVI (page 147) exhibits the mortality rates in 1950 from Cancer as a whole per million population by age and sex in four groupings of the standard regions (Wales; North, Midlands and East, South) and in aggregates of urban and rural administrative areas within each region-group. The urban aggregates are sub-classified by population density.

Table LXIX (page 151) expresses the crude death rate at all ages per million in each population density aggregate from (a) cancer of all sites, (b) cancer of the lung, and (c) cancer of other sites in terms of those for England and Wales as a whole. The descending gradient of mortality from lung cancer through the urban population density aggregates and the difference between the urban and rural areas is particularly striking. A difference between urban and rural areas is evident in the case of other cancers, but on a smaller scale, and the mortality rates are slightly higher in the aggregates of urban populations under 100,000 than in those comprising areas of 100,000 population or more.

The association between urbanization and cancer mortality, particularly cancer of the lung, is well-established and has been discussed in previous Texts (e.g. 1937) and by Stocks in " Regional and Local Differences in Cancer Death Rates ". Similar comparisons according to population density can be made for England and Wales as a whole for the following sites:—(a) from Table 19 (Part I) at separate ages for Stomach, Breast, Uterus, Leukæmia, Benign and Unspecified Neoplasms; (b) from Table 21 (Part I) at all ages combined for Mouth, Pharynx, Œsophagus, Intestine and Rectum, Larynx, Cervix Uteri, Hodgkin's disease, Lymphosarcoma. Regional rates for these sites can also be prepared from the Part I tables. Table 2 in the same volume gives the relevant populations.

A true comparison of mortality risks from particular cancers between different regions must take account not only of population differences in age (see page 143) but of variations between them in socio-economic and occupational factors with which the incidence of cancer may be associated. This demands a tabulation combining several years' deaths to ensure sufficient numbers in each category. The Occupational Mortality Decennial Supplement, covering the period 1949–53, will provide a number of cross-tabulations of this type.

Secular Trend of Mortality from Cancer

Trend of Mortality from Cancer as a whole. It was shown earlier that the chances of dying from cancer increased with age. At 55–64 the rate per million living is almost twice that at 45–54, and at 65–74 it is over three and a half times.

The birth rate in England and Wales fell from the 1880's to the 1930's; as a result successively fewer children were added to the population in each decade. This has led to a steady increase in the proportion of middle aged and elderly people in the country (the age groups born when a higher birth rate prevailed). In such a situation there are bound to be more deaths per thousand living (the crude death rate) from a disease like cancer, which exacts most of its toll in later life, even though the risk of dying at any particular age from cancer remains the same as before. Just as the older individual is more likely to die from cancer than the younger, so will an " older " population have more deaths from cancer than one with a relatively high proportion of young people. In order to answer the question—" Is the risk of dying from cancer greater now than previously? "—it is necessary to examine the trend of the cancer death rate in individual age-groups, or to remove or neutralize the " weighting " effect which a progressively ageing population has on the "all ages " death rate; this is done in different ways by the Comparative Mortality Index and the Equivalent Average Death Rate (defined and explained on pages 9 and 10).

(a) The overall trend

The Equivalent Average Death Rate (E.A.D.R.) over ages 0–64 for each of the years 1940–50 is shown in Table LXVII (page 149). These rates are expressed in the table which follows as percentages of the E.A.D.R. (ages 0—64) for 1936–39, together with the values of the C.M.I. from 1940 to 1950, in terms of the index for the year 1938 taken as unity.*

	Cancer of all sites (140–205)			
	E.A.D.R. (ages 0–64) 1936–39 = 100		C.M.I. (all ages) 1938 = 1·00	
	Males	Females	Males	Females
1940	102	99	1·01	0·99
1941	102	98	1·01	0·97
1942	102	99	1·02	0·97
1943	102	98	1·03	0·96
1944	103	97	1·01	0·94
1945	107	96	1·03	0·94
1946	108	97	1·03	0·95
1947	110	95	1·05	0·96
1948	112	95	1·06	0·95
1949	112	93	1·07	0·95
1950	115	93	1·09	0·95

Both these measures of mortality over a period of time show that since 1938 the risk of dying from cancer has decreased among women and increased among men.

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* All the Equivalent Average Death Rates are derived from the total deaths registered in England and Wales and are based on the total populations for the years 1938–49 and the home populations for 1950.

The C.M.I's. are based on civilian deaths and the civilian populations from 1938–49, but as from 1950 they have been calculated from the total deaths and the home population.

(b) The trend in individual age-groups

Table LXVII also gives the age specific death rates from cancer in 1950 and in each of the last ten years. (The rates are based on total populations including the armed forces at home and abroad, and on all deaths civilian and non-civilian, registered in England and Wales.) In table LXVIII (page 150) the rates from 1940 onwards are expressed as percentages of the average rate in the period 1936–39 to demonstrate the general trend.

The principal changes exhibited by the age-specific rates during the past decade are as follows:—

(i) Among *children* (ages 0–14) the low mortality rate of 60 per million from cancer in 1936–39 has increased to 80 per million in 1950: the increase is slightly more evident among girls.

Just over half of the 724 children who died from cancer in 1950 were under the age of 5; between the ages of 1 and 5 cancer accounted for 8 per cent of all deaths in the age group and ranked fourth to Influenza-Pneumonia-Bronchitis (18 per cent), Accidents (17 per cent) and Tuberculosis (12 per cent).

Despite the fact that mortality from cancer is at its lowest among school children (ages 5–14) more deaths among them (10 per cent of the total) were due to cancer than to any other single disease entity: Tuberculosis (9 per cent); influenza-pneumonia-bronchitis (7 per cent) and rheumatic fever and heart disease (7 per cent) were next in succession.

Table LXX (page 152) shows that the commonest varieties of cancer in children were those affecting the reticulo-endothelial and lymphoid tissue, the nervous system and the kidney.

(ii) Among *adult women* cancer mortality is declining at ages 35–74 which cover about three-quarters of all female cancer deaths. Between the ages of 35 and 64 this decline has been almost uninterrupted since 1900. The rates for young women at ages 15–34 have been more irregular.

(iii) Among *adult men*, and in marked contrast to the experience of women, cancer mortality rates are higher now than in 1936–39 at all ages except 25–34, and they have been increasing year by year. Two important provisos must be made:

(*a*) the trends of mortality remained steady among men aged 55–64 until 1945 and among men aged 65–74 until 1948;

(*b*) among younger men aged 35–44 a sharply rising trend was reversed in 1948 and the rate for 1949–50 was 5 per cent less than the rate for 1946–47.

(iv) *Among the elderly (ages 75 and over) in both sexes*, there was a temporary decline in cancer mortality associated with the war years which reached its lowest point in 1944.

This might have been due to a reduction in the number of old people admitted to hospital at that time for investigation or terminal nursing care, together with the absence on war service of many consultants, so that there were fewer opportunities for correct diagnosis. But the decline was also evident in mortality from all causes, and was particularly associated with cardiovascular-renal conditions (pp. 191–196 of the 1948–49 Text) which are often the immediate causes of death in elderly sufferers from cancer. The considerable influence of spells of cold weather, prolonged fogs, and influenza epidemics must always be kept in mind when mortality trends among those aged 65 or more are under review. Since 1946 there has been a slight upward trend in the rate of mortality from cancer among the elderly of both sexes.

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Secular Trends of Mortality from Cancer at different Sites. It is useful to consider mortality from cancer as a whole but it must be remembered that cancer is unlikely to have a single cause, just as there is no single cause of fever or inflammation. The balance of evidence at present suggests that there are particular causes for particular cancers in different parts of the body.

A neoplasm is the end result of a change in the normal metabolism or nutrition of a cell or group of cells which alters its manner of growth. While the biochemical mechanism responsible for this change may prove to be fundamentally similar in all cancers, it is likely that different environmental factors can set it in motion and that particular factors may be characteristically associated with cancer of particular sites. A few malignant neoplasms are due to errors in embryonic development, but it has been shown that mechanical irritation, chronic inflammation, dietary deficiencies, excessive exposure to ultra-violet light, radioactivity, or certain chemicals can all induce cancer on occasion; many years may pass before the effects of exposure to the carcinogenic factor become manifest.

Mortality from particular cancers may therefore vary at a given time in different areas (as exemplified in the table on page 151) as well as in different occupations and social classes; and over a period of time some cancers may become more frequent while others decrease, the contrasts being due to mutually independent alterations in the environmental factors. In other instances mortality might remain at much the same level because of the interaction of increasing incidence with increasingly beneficial results from earlier or more effective treatment.

Although at the present time our knowledge of the environmental factors causing cancer is limited, so that an increase or decrease in specific cancer mortality rates cannot be interpreted so easily as changes in death rates from bacterial and virus diseases, the trends of mortality from cancer in the several parts of the body by age and the variations in mortality from different cancers between places, occupations and socio-economic groups can provide useful pointers to the development of more specific cancer researches.

Before conclusions are drawn from secular trends and regional differences, however, there must be some assurance that they do not merely reflect changes in the degree of accuracy in diagnosis.

Cancers on the outside of the body, or in areas where they can be seen and felt directly by the patient's own doctor, are usually easy to diagnose, but in the majority of cases the primary site of an internal cancer can be established with certainty only by surgical operation or necropsy; this is not always possible especially with patients in the older age-groups. In the last twenty years diagnostic methods such as radiography, cystoscopy and bronchoscopy have been used more extensively and advances in anæsthesia and surgical aftercare have made it safer for the surgeon to explore the abdominal cavity in elderly people. These two factors, together with wider facilities for necropsy and histological examination, increase the chances of discovering cancer when it underlies presenting conditions such as bronchopneumonia, bronchiectasis, epilepsy, pyelitis, convulsions, etc., which may be the only obvious causes of death in the absence of further information. Improvements in the methods of diagnosis have also increased the chances of correctly identifying the primary site where the presence of a cancer was undoubted but there was uncertainty as to its nature and primary site of origin. For example, cancer in the elderly manifesting as jaundice with obvious liver involvement might be attributed to one or other of several primary sites; failing specific information the practitioner's choice will often be governed by the prevailing fashion or by what he was taught as a student.

There have been few objective appraisals of the accuracy of death certification conducted on a wide enough scale to give a representative and balanced picture, and we do not yet know the annual number of deaths by age from cancer and other causes in different types of hospital, and whether they followed operation or were verified by necropsy. Arrangements are in hand to fill this gap for future years. Willis has given a pathologist's viewpoint on the present position;* he exhibits a table based on 1,000 consecutive necropsies over the period 1936–44 in which cancer was either diagnosed clinically or discovered post-mortem. His findings suggested that the mortality figures from death certificates for cancer as a whole may not be far short of the " real " total (there was a deficit of about 10 per cent in his series) but that figures for individual sites may have a wide margin of error. He discusses the relative frequency of discrepancies between the clinical and post-mortem diagnoses at different sites; the discrepancies were frequent for internal cancers, particularly those in the lung, œsophagus, stomach, pancreas, biliary tract, and the brain. Agreement was good for cancers of the breast, mouth, and pharynx, and sufficiently good for most statistical purposes where cancers of the uterus, intestine, bladder, and lymphoid tissues were concerned.

Table XC in the 1948–49 Medical Text showed age specific mortality rates at a number of important sites in groups of years from 1911–1949. These sites reflected the site arrangement of the 5th Revision. It is intended to replace them in future texts by a series of sites and site groups chosen from the 6th Revision and running from 1950 onwards. Some of the new site groups will correspond exactly to those used in the previous decade, and with others the supplementary table showing the various sub-divisions will allow the groupings formerly used to be continued where this is desired.

Cancer of the Lung and Pleura. The outstanding increase in mortality from Cancer of the Lung was discussed in the 1948–49 Text, and in an Appendix to the Report of the Chief Medical Officer of Health for 1951. Table LXXI (page 156) shows death rates from primary Cancer of the Lung, Bronchus and Pleura (excluding cancer of the mediastinum) by sex in quinary age groups for ages 35–84 in quinquennial periods from 1901 ; the figures have been taken from the annual text volumes, where the site as specified has long been distinguished. The figures relate to the *total* number of deaths and the *total* populations, i.e. the latter include those serving in the armed forces during the two world wars, and the former all deaths registered in England and Wales. It should be noted that the rates from 1901 to 1939 are based on the number of deaths originally tabulated according to the rules of selection from joint causes.

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* Willis, R. A., " Pathology of Tumours " (2nd Edition, 1953), Chapter V.

Table LXVI.—Cancer (6th Revision, Nos. 140-205): age and sex specific death rates for Cancer as a whole per million living in standard region groups and population density aggregates within groups: England and Wales, 1950

	Males							Females						
	E.A.D.R. 0–34	35–	45–	55–	65–	75 and over	Crude death rate (all ages)	E.A.D.R. 0–34	35–	45–	55–	65–	75 and over	Crude death rate (all ages)
ENGLAND AND WALES	**112**	**549**	**2,066**	**5,275**	**10,324**	**15,820**	**2,058**	**102**	**685**	**1,863**	**3,706**	**6,695**	**11,308**	**1,840**
Conurbations	111	614	2,302	5,833	11,216	17,429	2,156	102	695	1,892	3,871	6,951	11,825	1,843
Other urban areas: 100,000 and over	119	581	2,279	5,790	11,267	16,184	2,168	113	659	1,846	3,860	6,871	11,488	1,846
Other urban areas: 50,000 and under 100,000	123	513	1,956	5,195	10,204	15,891	2,060	116	677	1,943	3,712	6,639	11,544	1,948
Other urban areas: under 50,000	117	495	1,867	4,911	10,035	15,124	2,045	93	741	1,933	3,550	6,730	11,005	1,888
Rural areas	100	460	1,679	4,244	8,554	14,103	1,807	101	618	1,691	3,410	6,024	10,524	1,728
NORTH (Northern, E. and W. Ridings, North Western)	**112**	**568**	**2,188**	**5,389**	**10,514**	**16,134**	**2,078**	**101**	**704**	**1,894**	**3,719**	**7,002**	**11,492**	**1,821**
Tyneside conurbation	130	672	2,630	5,769	11,154	17,400	2,214	143	641	2,224	4,348	7,031	13,429	1,874
W. Yorks conurbation	108	557	2,128	5,429	10,145	16,714	2,160	81	806	2,089	4,009	7,450	12,833	2,130
S.E. Lancs conurbation	115	586	2,463	5,863	11,040	16,929	2,236	98	771	1,919	3,711	7,306	11,304	1,906
Merseyside conurbation	97	818	2,765	6,690	12,297	19,500	2,223	120	642	1,819	3,632	7,722	11,160	1,701
Total conurbations	110	637	2,449	5,889	11,041	17,425	2,210	105	737	1,985	3,856	7,398	11,975	1,917
Other urban areas: 100,000 and over	130	533	2,306	6,241	11,088	14,286	2,204	114	769	1,820	3,612	6,720	12,552	1,789
Other urban areas: 50,000 and under 100,000	117	610	2,058	5,278	10,486	14,600	2,066	100	713	1,738	4,032	6,435	12,667	1,834
Other urban areas: under 50,000	122	488	1,914	5,047	10,812	15,895	2,036	70	712	1,799	3,407	6,855	11,059	1,731
Rural areas	95	526	1,554	4,053	8,217	16,522	1,659	117	515	1,788	3,301	5,925	9,200	1,554

Table LXVI—*continued.*

	Males							Females						
	E.A.D.R. 0–34	35–	45–	55–	65–	75 and over	Crude death (all ages)	E.A.D.R. 0–34	35–	45–	55–	65–	75 and over	Crude death (all ages)
MIDLAND AND EAST (North Midland, Midland, Eastern)	107	518	1,817	4,966	10,062	15,374	1,934	107	692	1,924	3,535	6,563	11,039	1,750
West Midlands conurbation	112	544	2,273	5,677	10,869	17,417	1,948	83	608	2,046	3,793	6,728	11,816	1,648
Other urban areas: 100,000 and over	113	621	2,171	5,795	11,224	16,708	2,116	124	717	1,884	3,813	6,854	10,750	1,814
Other urban areas: 50,000 and under 100,000	141	531	1,743	4,638	11,067	18,077	1,913	122	643	2,151	4,000	6,200	10,739	1,794
Other urban areas: under 50,000	107	556	1,834	4,823	12,027	14,537	2,048	118	861	1,860	3,559	6,822	11,322	1,835
Rural areas ...	90	399	1,469	4,243	8,476	15,596	1,736	100	607	1,667	3,063	5,680	11,661	1,643
SOUTH (London and South Eastern, Southern, South Western)	114	557	2,081	5,416	10,429	16,156	2,132	103	679	1,781	3,775	6,479	11,343	1,918
Greater London conurbation	111	617	2,200	5,829	11,444	17,436	2,173	105	686	1,784	3,901	6,647	11,727	1,838
Other urban areas: 100,000 and over	138	699	2,111	5,778	11,848	17,957	2,432	119	643	1,832	4,286	6,884	13,459	2,154
Other urban areas: 50,000 and under 100,000	106	397	1,939	5,040	8,784	13,737	2,056	108	578	1,842	3,189	6,049	10,889	2,033
Other urban areas: under 50,000	130	449	1,803	4,841	10,266	15,787	2,192	102	700	1,887	3,469	6,211	11,200	2,073
Rural areas ...	106	460	1,815	4,677	7,905	15,938	1,896	92	665	1,439	3,684	5,410	10,778	1,778
WALES ...	120	534	1,937	5,047	9,784	14,103	2,013	83	585	1,994	3,846	7,078	11,294	1,809
Urban areas: 100,000 and over ...	120	630	2,838	5,265	11,111	12,889	2,182	99	396	2,000	3,447	6,792	11,000	1,660
Urban areas: 50,000 and under 100,000 ...	—	500	2,200	9,500	27,000	16,000	2,586	143	1,250	1,500	3,667	6,000	7,000	1,438
Urban areas: under 50,000 ...	128	494	1,658	4,712	10,417	14,765	2,011	77	591	2,128	3,623	7,295	10,792	1,866
Rural areas ...	121	574	1,727	4,070	9,250	12,846	1,889	77	685	1,661	3,591	7,281	13,500	1,848

Table LXVII.—Cancer*: age and sex specific death rates per million living, and E.A.D.R. (ages 0–64). England and Wales, 1936–39, 1940–44 and each individual year, 1945 to 1950.

	1936–39	1940–44	1945	1946	1947	1948	1949	1950
	Males							
Crude Death Rate (all ages)	1,635	1,743	1,844	1,876	1,928	1,963	1,991	2,058
E.A.D.R. (ages 0–64)	1,111	1,134	1,185	1,196	1,225	1,244	1,241	1,274
0–...	86	88	95	83	112	101	116	106
5–...	51	61	57	67	65	65	64	62
15–...	85	82	86	94	94	91	102	100
25–...	175	169	189	184	190	169	180	177
35–...	505	542	557	574	594	574	559	549
45–...	1,673	1,762	1,856	1,956	1,940	1,995	1,964	2,066
55–...	4,692	4,712	4,908	4,858	5,024	5,142	5,140	5,275
65–...	9,791	9,909	9,864	9,799	10,071	10,246	10,362	10,324
75 and over ...	14,398	14,149	13,757	14,285	14,645	14,732	15,238	15,820
	Females							
Crude Death Rate (all ages)	1,632	1,697	1,738	1,773	1,792	1,799	1,819	1,840
E.A.D.R. (ages 0–64)	1,093	1,073	1,047	1,057	1,040	1,033	1,021	1,017
0–...	66	70	81	79	91	81	106	96
5–...	36	41	46	43	42	41	45	56
15–...	64	61	62	61	63	64	71	60
25–...	182	192	191	188	186	177	188	194
35–...	744	714	705	715	707	674	689	685
45–...	2,049	2,025	1,937	1,977	1,941	1,936	1,889	1,863
55–...	3,999	3,907	3,823	3,848	3,778	3,780	3,704	3,706
65–...	7,089	6,891	6,732	6,808	6,769	6,715	6,757	6,695
75 and over ...	11,019	10,448	10,274	10,493	10,965	10,825	11,001	11,308

* Up to and including 1948: 5th Revision (Nos. 45–55 together with Hodgkin's Disease (44b) and Leukæmia and Aleukæmia (74)) 1949 and 1950 : 6th Revision (Nos. 140–205).

Table LXVIII.—Cancer* : age and sex specific death rates per million living and E.A.D.R. (ages 0–64). England and Wales : Rates for 1940–44 and 1945 to 1950 expressed as percentages of the corresponding average rate over the period 1936–39

	1936–39	1940–44	1945	1946	1947	1948	1949	1950
				Males				
Crude Death Rate (all ages)	**100**	*107*	*113*	*115*	*118*	*120*	*122*	*126*
E.A.D.R. (ages 0–64).	**100**	*102*	*107*	*108*	*110*	*112*	*112*	*115*
0–...	**100**	*102*	*110*	*97*	*130*	*117*	*135*	*123*
5–...	**100**	*120*	*112*	*131*	*127*	*127*	*125*	*122*
15–...	**100**	*96*	*101*	*111*	*111*	*107*	*120*	*118*
25–...	**100**	*97*	*108*	*105*	*109*	*97*	*103*	*101*
35–...	**100**	*107*	*110*	*114*	*118*	*114*	*111*	*109*
45–...	**100**	*105*	*111*	*117*	*116*	*119*	*117*	*123*
55–...	**100**	*100*	*105*	*104*	*107*	*110*	*110*	*112*
65–...	**100**	*101*	*101*	*100*	*103*	*105*	*106*	*105*
75 and over ...	**100**	*98*	*96*	*99*	*102*	*102*	*106*	*110*
				Females				
Crude Death Rate (all ages)	**100**	*104*	*106*	*109*	*110*	*110*	*111*	*113*
E.A.D.R. (ages 0–64)	**100**	*98*	*96*	*97*	*95*	*95*	*93*	*93*
0–...	**100**	*106*	*123*	*120*	*138*	*123*	*161*	*145*
5–...	**100**	*114*	*128*	*119*	*117*	*114*	*125*	*156*
15–...	**100**	*95*	*97*	*95*	*98*	*100*	*111*	*94*
25–...	**100**	*105*	*105*	*103*	*102*	*97*	*103*	*107*
35–...	**100**	*96*	*95*	*96*	*95*	*91*	*93*	*92*
45–...	**100**	*99*	*95*	*96*	*95*	*94*	*92*	*91*
55–...	**100**	*98*	*96*	*96*	*94*	*95*	*93*	*93*
65–...	**100**	*97*	*95*	*96*	*95*	*95*	*95*	*94*
75 and over ...	**100**	*95*	*93*	*95*	*100*	*98*	*100*	*103*

* Up to and including 1948: 5th Revision (Nos. 45–55 together with Hodgkin's Disease (44b) and Leukæmia and Aleukæmia (74)) 1949 and 1950 : 6th Revision (Nos. 140–205).

Table LXIX.—Death rates per million living by sex in national density aggregates, and percentage of rates for England and Wales, for cancer of all sites, of lung, and of all sites other than lung, 1950.

	Rate per million living (all ages)		Percentage of rate for England and Wales	
	Males	Females	Males	Females
(a) Cancer of all sites (140–205)				
England and Wales	**2,058**	**1,840**	*100*	*100*
Conurbations	2,156	1,843	*105*	*100*
Other urban areas { 100,000 & over	2,168	1,846	*105*	*100*
Other urban areas { 50,000–100,000	2,060	1,948	*100*	*106*
Other urban areas { under 50,000.	2,045	1,888	*99*	*103*
Rural areas	1,807	1,728	*88*	*94*
(b) Cancer of lung (162,163)				
England and Wales	**484**	**88**	*100*	*100*
Conurbations	613	106	*127*	*120*
Other urban areas { 100,000 & over	539	85	*111*	*97*
Other urban areas { 50,000–100,000	427	76	*88*	*86*
Other urban areas { under 50,000.	399	76	*82*	*86*
Rural areas	313	66	*65*	*75*
(c) Cancer of all sites other than lung: *(a)–(b)*				
England and Wales	**1,574**	**1,752**	*100*	*100*
Conurbations	1,544	1,736	*98*	*99*
Other urban areas { 100,000 & over	1,629	1,761	*103*	*101*
Other urban areas { 50,000–100,000	1,633	1,872	*104*	*107*
Other urban areas { under 50,000	1,646	1,812	*105*	*103*
Rural areas	1,494	1,662	*95*	*95*

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Table LXXa.—Cancer (6th Revision, Nos. 140-205): age and sex specific death rates per million living from cancer at various sites. England and Wales, 1950—Males

Int. Class. No. 6th Revision	Site or organ	All ages	0-	5-	15-	25-	35-	45-	55-	65-	75-	85 and over
140	Lip											
141	Tongue											
142	Salivary gland	51	—	—	*0*	*1*	*3*	16	84	283	705	985
143	Floor of mouth											
144	Other parts of mouth and mouth unspecified											
145	Oral mesopharynx											
146	Nasopharynx	24	—	—	*2*	*1*	*2*	18	53	133	251	*279*
147	Hypopharynx											
148	Pharynx unspecified											
150	Œsophagus	71	—	—	—	*0*	9	46	131	444	773	721
151	Stomach	379	—	*0*	*4*	16	98	367	952	2,086	2,963	2,324
152	Small intestine, including duodenum	209	—	*0*	*2*	14	42	129	396	1,161	2,380	2,294
153	Large intestine, except rectum											
154	Rectum	175	—	—	*1*	7	29	108	388	1,017	1,753	1,868
155	Biliary passages and liver (stated to be primary site)	23	2	*0*	*1*	2	6	22	52	125	*179*	*147*
157	Pancreas	74	—	—	*0*	4	13	68	189	378	686	544
161	Larynx	38	—	—	—	*0*	4	27	86	226	386	353
162	Trachea, bronchus and lung specified as primary	484	*1*	*0*	*4*	29	165	821	1,836	2,025	1,288	515
163	Lung and bronchus, unspecified as to whether primary or secondary											
170	Breast	3	—	—	—	*0*	*1*	*4*	*5*	14	*26*	*74*
177	Prostate	146	*1*	—	*1*	—	*1*	21	192	912	2,244	2,426
178	Testis	10	*2*	—	*6*	18	17	9	11	*14*	*18*	*15*
179	Other and unspecified male genital organs	8	—	—	*0*	—	2	3	15	32	111	*132*
180	Kidney	107	17	1	2	4	20	97	297	543	860	868
181	Bladder and other urinary organs											

Int. Class. No. 6th Revision	Site or organ	All ages	0–	5–	15–	25–	35–	45–	55–	65–	75–	85 and over
190 191	Skin (malignant melanoma) Skin (malignant neoplasm)	26	—	—	2	2	6	14	40	123	317	897
193	Malignant neoplasm of brain and other parts of nervous system	32	11	13	8	14	34	66	86	48	11	—
194	Thyroid gland	3	—	—	—	0	—	5	10	20	18	15
195	Other endocrine glands	3	9	2	1	1	2	4	5	4	6	—
196 197	Bone (including jaw bone) Connective tissue	25	5	4	17	7	10	20	61	104	135	162
158 164 198	Peritoneum Mediastinum Secondary and unspecified malignant neoplasm of lymph nodes	16	4	2	1	3	6	18	45	73	79	44
200	Lymphosarcoma and reticulosarcoma	18	4	5	7	8	14	27	39	51	66	15
201	Hodgkin's disease	20	1	6	11	22	21	28	35	41	31	15
202	Other forms of lymphoma (reticulosis)	2	2	0	0	2	1	4	6	4	7	—
203	Multiple myeloma (plasmocytoma)	5	1	0	—	1	2	9	18	20	13	—
204	Leukaemia and aleukaemia	47	44	24	25	18	25	56	96	141	124	132
205	Myosis fungoides	0	—	—	0	—	—	—	1	4	—	—
Others in 140–205	Remaining sites	59	5	2	3	3	14	58	146	299	459	441
140–205	**Total**	2,058	106	82	100	177	549	2,066	5,275	10,324	15,889	15,265
193	Malignant neoplasm of brain and other parts of nervous system	57	18	20	15	25	62	111	160	85	41	—
223	Benign neoplasm of brain and other parts of nervous system											
237	Neoplasm of unspecified nature of brain and other parts of nervous system											

Table LXXb.—Cancer (6th Revision, Nos. 140-205): age and sex specific death rates per million living from cancer at various sites. England and Wales, 1950—Females

Int. Class. No. 6th Revision	Site or organ	All ages	0–	5–	15–	25–	35–	45–	55–	65–	75–	85 and over
140	Lip											
141	Tongue											
142	Salivary glands	14	—		—	1	3	8	25	51	105	186
143	Floor of mouth											
144	Other parts of mouth and mouth unspecified											
145	Oral mesopharynx											
146	Nasopharynx	14	1	0	1	1	8	17	38	37	62	48
147	Hypopharynx											
148	Pharynx unspecified											
150	Œsophagus	37	—	—	—	2	8	19	61	166	286	359
151	Stomach	284	—	0	1	16	51	160	459	1,250	2,315	2,579
152	Small intestine including duodenum	261	—	0	2	11	57	164	418	996	2,280	3,034
153	Large intestine except rectum											
154	Rectum	112	—	—	1	7	21	79	203	449	861	1,076
155	Biliary passages and liver (stated to be primary site)	36	—	0	—	1	6	26	70	178	225	193
157	Pancreas	63	—	—	—	1	9	32	138	286	437	503
161	Larynx	8	—	—	—	1	3	12	15	31	42	34
162	Trachea, bronchus and lung specified as primary	88	—	0	1	8	42	107	213	341	351	241
163	Lung and bronchus, unspecified as to whether primary or secondary											
170	Breast	350	—	—	2	31	215	522	770	1,052	1,567	2,283
171	Cervix uteri	117	—	—	1	19	71	188	314	335	381	359
172	Corpus uteri											
173	Other parts of uterus, including chorionepithelioma	65	1	—	1	4	18	73	171	252	312	221
174	Uterus, unspecified											
175	Ovary, Fallopian tube and broad ligament	110	—	2	4	16	58	208	285	327	291	221
178	Other and unspecified female genital organs	21	1	—	—	1	4	11	26	94	171	255

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Table LXXb—*continued*.

Int. Class. No. 6th Revision	Site or organ	All ages	0–	5–	15–	25–	35–	45–	55–	65–	75–	85 and over
180 181	Kidney ... / Bladder and other urinary organs	50	14	3	1	3	8	31	83	218	362	421
190 191	Skin (malignant melanoma) / Skin (malignant neoplasm)	21	1	0	2	5	7	14	29	55	180	434
193	Brain and other parts of nervous system	23	14	11	8	14	24	44	47	28	14	14
194	Thyroid gland ...	11	—	1	—	1	3	6	25	43	67	62
195	Other endocrine glands ...	2	9	1	—	1	1	1	5	2	—	7
196 197	Bone (including jaw bone) / Connective tissue	18	4	7	9	5	8	12	36	59	83	90
158 164 198	Peritoneum / Mediastinum / Secondary and unspecified neoplasm of lymph nodes	12	4	1	1	2	5	16	28	40	43	28
200	Lymphosarcoma and reticulosarcoma	11	1	3	3	4	5	14	23	37	36	7
201	Hodgkin's disease ...	11	—	1	6	13	10	8	22	26	27	14
202	Other forms of lymphoma (reticulosis)	2	2	—	1	0	1	2	3	5	6	—
203	Multiple myeloma (plasmocytoma) ...	5	1	—	—	1	1	7	15	16	14	14
204	Leukaemia and aleukaemia ...	37	40	24	16	18	21	33	65	96	84	48
205	Mycosis fungoides ...	0	—	—	—	—	—	0	1	2	2	—
Others in 140–205	Remaining sites ...	58	4	1	1	5	17	47	118	224	376	441
140–205	**Total**	**1,840**	**96**	**56**	**60**	**194**	**685**	**1,863**	**3,706**	**6,895**	**10,975**	**13,172**
193	Malignant neoplasm of brain and other parts of nervous system	45	23	17	14	28	44	85	98	66	36	14
223	Benign neoplasm of brain and other parts of nervous system											
237	Neoplasm of unspecified nature of brain and other parts of nervous system											

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Table LXXI.—Cancer of Lung and Pleura*: Death rates per million living by sex and age in each quinquennium, 1901–50

	35–	40–	45–	50–	55–	60–	65–	70–	75–	80–84
Males										
1901–05 ...	10		26		41		53		35	
1906–10 ...	15		30		55		63		49	
1911–15 ...	11	17	30	46	62	70	76	69	52	21
1916–20 ...	11	15	25	40	55	76	86	71	52	41
1921–25 ...	18	27	44	66	87	101	113	97	86	50
1926–30 ...	22	52	76	112	148	181	169	158	133	94
1931–35 ...	54	87	186	256	348	364	354	349	276	189
1936–40 ...	68	149	274	431	586	646	636	533	463	324
1941–45 ...	81	191	384	597	883	1,020	970	748	631	385
1946–50 ...	94	236	543	952	1,351	1,716	1,764	1,401	1,082	760
Females										
1901–05 ...	9		22		30		37		18	
1906–10 ...	8		22		39		37		32	
1911–15 ...	8	11	20	27	31	39	46	54	40	17
1916–20 ...	5	10	14	22	34	36	34	38	29	31
1921–25 ...	4	12	21	26	34	50	50	50	39	29
1926–30 ...	9	16	22	32	58	61	69	74	73	49
1931–35 ...	13	25	41	55	78	118	132	117	121	95
1936–40 ...	16	32	49	78	107	153	179	192	183	152
1941–45 ...	22	36	57	93	124	170	201	226	205	172
1946–50 ...	24	48	73	117	169	222	302	316	309	280

* Excluding mediastinum: these sites have been specified separately or together since 1900 in the annual table classifying deaths from cancer by detailed site.

Table LXXII.—Deaths from Cancer by sex and age according to histological type, and death rates per million living, 1950

		All ages	0–	15–	35–	45–	55–	65 and over
		Number of deaths						
All malignant neoplasms	M.	43,570	388	848	1,857	5,829	10,751	23,897
(140–205)	F.	41,700	336	801	2,349	5,754	9,312	23,148
Carcinomata ...	M.	38,438	28	338	1,362	4,979	9,565	22,166
	F.	37,393	28	450	1,985	5,132	8,399	21,399
Gliomata	M.	570	59	57	101	161	138	54
	F.	420	54	55	70	104	97	40
Sarcomata	M.	1,144	86	143	112	169	269	365
	F.	972	83	82	90	142	201	374
" Reticuloses " ...	M.	1,950	203	285	216	348	396	502
	F.	1,491	160	191	131	202	323	484
Undefined	M.	1,468	12	25	66	172	383	810
	F.	1,424	11	23	73	174	292	851
		Death rate per million living persons						
All malignant neoplasms (140–205)		1,945	75	136	617	1,960	4,408	9,826
Carcinomata		1,730	6	65	491	1,711	3,947	9,099
Gliomata		23	12	9	25	45	52	20
Sarcomata		48	18	19	30	53	103	154
" Reticuloses "		79	38	39	51	93	158	206
Undefined		66	2	4	20	59	148	347

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DISEASES OF THE RESPIRATORY SYSTEM

Influenza (480–483)

The distribution of influenza throughout the world varies considerably from year to year and the mortality caused by it in any one year in England and Wales depends upon the extent of penetration of the virus into this country and the lethality of the predominating type of virus. Every few years and sometimes in successive years there is a winter epidemic causing widespread incapacity and considerable mortality. Since 1921 outbreaks in which the weekly deaths in the Great Towns have, at their peak, exceeded 1,000 have occurred in the winters of 1921–22, 1926–27, 1928–29, 1932–33, 1936–37, 1943–44. A number of smaller epidemics have occurred at intermediate dates. An epidemic began in the last two weeks of 1950 but did not materially affect the statistics for the year.

Though the epidemics have recurred and death rates in individual years have fluctuated with the severity of the epidemics, the general trend of mortality from influenza has been downward ever since the pandemic of 1918–19. The Comparative Mortality Index in successive quinquennia has been:—

1921–25	...	...	...	3·77
1926–30	...	...	...	3·54
1931–35	...	...	...	2·85
1936–39	...	...	...	2·01
1940–44	...	...	...	1·64
1945–49	...	...	...	0·70

Assignment of deaths to influenza could only be precise upon the basis of virus isolation in all instances; this being impracticable the diagnosis rests upon the assessment of symptoms (antecedent to the severe terminal respiratory complications) not always readily distinguishable from some manifestations of the common cold. When it is borne in mind that influenza epidemics quite often occur when respiratory morbidity is already seasonally high (and it is not uncommon for the epidemic to double the general level of incapacity preceding its inception) it will be appreciated that the separation of the toll of influenza is a matter of some doubt. On the one hand the sharp rise in respiratory morbidity which heralds an influenza epidemic is unmistakable and the influenzal origin of many deaths beyond doubt; on the other hand it is inevitable that some deaths may be assigned to influenza solely because they occur when the epidemic is known to be in full swing. A further source of confusion is the fact that most of the deaths occur, as can be seen from the following table, among older adults who are commonly already sufferers from other respiratory disability.

Influenza: Mean annual death rate* per 100,000 living by sex and age, 1941–50

	0–	15–	45–	65 and over	All ages
Males	40	26	170	641	116
Females	35	23	94	638	113

* The figures for the years 1941 to 1948 include deaths from meningitis due to hæmophilus influenzæ (340·0), most of which occurred in the 0–14 age group.

It will be seen from Table LXXIII (page 160) that in years of higher influenza prevalence, the mortality from bronchitis and especially from pneumonia in elderly persons is often also raised in contrast to mortality from non-respiratory causes which is not so regularly affected.   Whether this general rise in the level of respiratory mortality is due to the diagnostic overlap discussed above or whether it occurs because the conditions which favour the spread of influenza also favour other respiratory infections is not known but it has been noticed that deaths of elderly bronchitics are more correlated with fog and frost than influenza (Benjamin, 1951)*, and this suggests that the separation of true influenza deaths is in practice perhaps more reliable than might be imagined.

An important feature of influenza mortality is the excess of male mortality in the 45–64 age range and beyond.   In 1950 the deaths in quinary age groups were:—

Age	Males	Females	Difference
40–	60	47	+13
45–	83	62	+21
50–	120	73	+47
55–	149	101	+48
60–	187	145	+42
65–	229	216	+13

A similar excess, though extending to somewhat older ages, occurs in the distribution of pneumonia mortality as can be seen from Table LXXVI (page 163).   This is the age period of maximal tuberculosis mortality in males and when deaths from cancer of the lung become numerous.   It appears to be an age period of special vulnerability in the respiratory system of males.

The geographical distribution of influenza varies from epidemic to epidemic and to the extent to which prevalence is dependent upon the importation of virus from abroad it is affected by the actual port of entry and the paths of spread.   Over the five years 1946–50 mortality has often been above average in Wales and the South West Region.   In 1950 the assigned mortality was higher in small towns than in large towns (Table LXXIVb, page 162).

Pneumonia (490–493)

There were 18,416 deaths from all forms of pneumonia in 1950 compared with 21,001 in 1949 (Table LXXV (page 162).   The C.M.I. in 1950 was only 0·53 indicating that mortality has been halved.   The introduction of penicillin and sulpha therapy, which has produced this dramatic fall in mortality, has also reduced the number of cases in which pneumonia develops to a stage of clinical significance; it has also produced a change in attitude toward pneumonia which is no longer regarded as such a menacing infection as previously and there is less inclination to notify its occurrence.   For both reasons, the number of notifications has fallen.   Though it is difficult to make an apportionment to the two factors producing this decline in notification it does appear that incompleteness of notification has been increased since the ratio of deaths to notifications, i.e. the apparent case fatality, has increased, which is against all clinical experience.

Death rates by age and sex for the two main forms of pneumonia from 1931 to 1950 together with the C.M.I's. are shown in Table LXXVI (page 163). It will be seen that the full utilization of sulphonamides is marked in 1939 by a

* Influenza, 1951.   Contribution to Royal Society of Medicine discussion.   Proceedings of the Royal Society of Medicine, **44**, (1951), p. 789.

31 per cent fall in the mortality of males (C.M.I.) from lobar pneumonia as compared with the previous year; the corresponding decline for females being 25 per cent. The mortality from other forms of pneumonia, mainly consisting as it does of deaths of young infants and elderly people, is more sensitive to severe weather and to the general level of upper respiratory infection (it is for example upon mortality from broncho pneumonia that the effects of cold winters and war conditions in 1940–41 can be most clearly seen) but the more rapid decline in mortality at the end of the 1930's can still be seen. The two sexes have shared almost equally in the very great progress that has been achieved, but there has been less reduction in mortality at advanced ages.

That a higher prevalence of respiratory disease is at present a penalty of urban life is illustrated by Table LXXVII (page 165); the death rates are highest in the conurbations and lowest in the rural areas, and in between the extremes there is at most ages a steady gradient in mortality. We have referred elsewhere to the mortality effects of the greater crowding and atmospheric pollution of the industrial areas (p. 19) and this is expressed here by higher mortality rates from pneumonia at working ages in the regions of the North. At older ages the death rates are highest in Greater London.

Bronchitis (500–502)

In contrast for example to the United States of America, where few deaths are ascribed directly to bronchitis, this disease is commonly certified in this country as the cause of death; in 1950, 28,257 deaths were so assigned, of which 72·5 per cent were over the age of 65. Most of these deaths are described as due to chronic bronchitis often with mention of some cardiac condition; it seems probable that in many of these cases bronchitis is the most predominant symptom in a more general complex of degeneration. The death rate in a year is therefore sensitive to weather conditions and to epidemics of upper respiratory infection which might lead these bronchitic symptoms to predominate; it would be expected that the general trend of mortality from bronchitis would be that of the general death rate at older ages but would also be correlated to some extent with the death rates at advanced ages from non-respiratory degenerative causes. An old person must eventually die and in many cases if the death is not ascribed to bronchitis it will be assigned to heart disease or nephritis or some other degenerative condition. Naturally the reduction in mortality, as can be seen from Table LXXVIII (page 167) has been greater for acute than for chronic bronchitis; in males the C.M.I. for chronic bronchitis has, if anything, risen very slightly in the last few years (Table LXXIX, page 168).

The geographical distribution of mortality from bronchitis shows the same Northern excess as was indicated for pneumonia, more especially for males (Table LXXX, page 171).

The following figures taken from Table LXXIII (page 160) show that there is a tendency to ascribe a larger proportion of respiratory mortality in old persons (over age 65) to pneumonia, and less to bronchitis, than formerly. The proportion attributed to bronchitis in 1950 is smaller however than it would otherwise be by virtue of the transfer of 627 deaths from bronchiectasis to a separate rubric in the 6th Revision of the International List.

Year	Total deaths from diseases of respiratory system at ages 65 and over (excluding influenza)	Per cent assigned to	
		Pneumonia	Bronchitis
1940–44... ...	165,240	27	65
1945–49... ...	158,642	29	62
1950	33,005	31	62

As the following figures show there has also been a general tendency in the certification of deaths of old people to assign more deaths either to heart disease or to acute respiratory infection and fewer to bronchitis.

Year	Total deaths at ages 65 and over	Per cent assigned to		
		Heart disease	Pneumonia	Bronchitis
1940–44 ...	1,370,643	*33*	*3*	*8*
1945–49 ...	1,481,095	*36*	*3*	*7*
1950	330,753	*40*	*3*	*6*

Table LXXIII.—Diseases of the respiratory system: Death rates per million living at ages 0–14, 15–44 and 45 and over from influenza; at ages 65 and over from bronchitis, pneumonia and other respiratory diseases (excluding influenza) and from non-respiratory diseases, 1921 to 1950

Year	Influenza			Bronchitis	Pneumonia	Other respiratory diseases (excluding influenza)	All non-respiratory causes
	0–14	15–44	45 and over	65 and over			
1921 ...	121	129	564	8,773	2,704	950	58,611
1922 ...	305	289	1,338	10,781	3,088	1,018	61,410
1923 ...	83	107	565	8,541	2,765	948	58,380
1924 ...	229	205	1,257	9,760	2,947	949	60,003
1925 ...	117	141	858	9,002	3,023	969	61,051
1926 ...	91	104	573	7,461	2,563	857	59,692
1927 ...	252	222	1,440	8,275	2,953	904	61,934
1928 ...	71	93	480	5,531	2,409	760	61,823
1929 ...	261	250	1,948	7,959	3,513	898	66,771
1930 ...	42	52	318	4,417	2,272	648	61,145
1931 ...	141	139	898	5,674	2,680	763	64,743
1932 ...	113	114	840	4,506	2,525	686	64,885
1933 ...	160	238	1,408	4,541	2,465	688	64,022
1934 ...	46	55	340	3,512	2,380	599	63,065
1935 ...	57	71	445	3,152	2,238	614	63,800
1936 ...	47	53	367	3,410	2,367	596	65,865
1937 ...	113	144	1,165	3,355	2,436	591	65,086
1938 ...	42	45	279	2,395	2,062	484	62,691
1939 ...	57	62	555	2,744	2,098	497	65,830
1940 ...	88	76	691	7,817	2,678	927	66,594
1941 ...	59	43	413	5,720	2,352	671	60,868
1942 ...	36	23	193	4,365	1,889	577	56,728
1943 ...	77	57	780	5,075	2,328	638	56,343
1944 ...	39	19	226	4,164	1,806	561	56,231
1945 ...	33	15	148	4,457	1,790	604	56,478
1946 ...	44	27	305	4,246	1,939	604	57,489
1947 ...	31	15	188	4,743	2,214	661	60,211
1948 ...	16	7	64	3,643	1,762	616	54,855
1949 ...	27	20	334	4,544	2,406	739	60,155
1949* ...	21	20	334	4,446	2,406	471	60,521
1950* ...	17	18	222	4,279	2,139	475	61,670

* According to 6th Revision of International Classification.

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Table LXXIVa.—Influenza: Death rates per million living in standard regions, 1946 to 1949

Region	Death rate per million living			
	1946	1947	1948	1949
ENGLAND AND WALES	**130**	**79**	**29**	**131**
Northern	117	90	31	105
East and West Ridings	119	61	27	153
North Western	147	69	31	167
North Midland	147	79	22	135
Midland	131	76	30	166
Eastern	125	76	25	135
London and S. E.	118	83	27	104
Southern	105	68	25	94
South Western	147	86	35	124
Wales	144	114	42	132

Table LXXIVb.—Influenza: Death rates per million living in standard regions and density aggregates, 1950

Area	Death rate per million living	Area	Death rate per million living
ENGLAND AND WALES	**89**	**MIDLANDS AND EASTERN** Regions:	
Conurbations	81	North Midland	79
		Midland	98
Areas outside conurbations ...	94	Eastern	69
Urban areas with populations of 100,000 or over ...	82	Total	84
Urban areas with populations of 50,000 and under 100,000	94	Conurbation (West Midland) ...	99
Urban areas with populations under 50,000	100	**Areas outside conurbation:** Urban areas with populations of 100,000 or over ...	69
Rural areas	96	Urban areas with populations of 50,000 and under 100,000	64
		Urban areas with populations under 50,000	86
NORTH		Rural areas	87
Regions:			
Northern	147	**GREATER LONDON**	66
East and West Ridings ...	60		
North Western	104	**SOUTH**	
		Regions:	
Total	101	Remainder of South East ...	91
		Southern	70
		South Western	107
		Total	90
Conurbations:			
Tyneside	187	Urban areas with populations of 100,000 and over ...	83
West Yorkshire	62	Urban areas with populations of 50,000 and under 100,000	87
South East Lancashire ...	104	Urban areas with populations under 50,000	90
Merseyside	61	Rural areas	96
Total	94		
		WALES	119
Areas outside conurbations:		Urban areas with populations of 100,000 and over ...	127
Urban areas with populations of 100,000 and over ...	88	Urban areas with populations of 50,000 and under 100,000	213
Urban ares with populations of 50,000 and under 100,000	117	Urban areas with populations under 50,000	117
Urban areas with populations under 50,000	120	Rural areas	109
Rural areas	96		

Table LXXV.—Pneumonia: Notifications, deaths and deaths per 100 notifications, 1941 to 1950

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1949	1950
Notifications* ...	50,942	42,698	52,407	38,631	34,371	36,613	33,229	31,358	34,561	34,561	30,663
Deaths	26,418	20,828	24,763	20,040	19,984	20,215	22,695	17,629	20,792	21,001†	18,416†
Deaths per 100 notifications	52	49	47	52	58	55	68	56	60	61	60

* Corrected for diagnosis revision from 1944, except for cases notified in Port Health Districts.
† According to 6th (1948) Revision of International Classification.

Table LXXVI.—Pneumonia: Death rates per million living by sex and age and comparative mortality indices, 1931 to 1950

Year	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. All ages
					Lobar pneumonia—Males						
1931	880	275	62	124	170	356	525	705	948	1,229	1·11
1932	890	244	68	124	171	320	482	641	919	1,253	1·06
1933	904	272	65	116	167	341	498	652	799	1,146	1·04
1934	911	280	62	130	179	364	587	721	945	1,264	1·16
1935	912	215	55	103	160	332	533	737	827	1,126	1·06
1936	873	227	53	102	157	310	527	727	868	1,012	1·04
1937	938	245	54	91	159	316	540	759	803	1,075	1·05
1938	832	199	49	108	149	300	515	693	824	1,102	1·00
1939	657	131	26	44	67	142	327	526	701	1,122	0·69
1940	795	131	27	53	75	137	311	560	732	958	0·71
1941	1,014	154	27	41	50	137	295	544	717	1,014	0·70
1942	712	98	19	34	41	118	223	477	647	804	0·59
1943	784	77	19	26	37	106	246	478	655	1,057	0·62
1944	773	62	14	20	34	86	186	403	610	859	0·53
1945	746	51	11	21	28	65	158	347	540	824	0·46
1946	631	55	5	15	25	56	136	354	547	868	0·42
1947	546	60	6	15	23	55	139	349	528	938	0·42
1948	505	35	7	9	20	34	130	283	461	758	0·34
1949	491	30	7	8	16	33	96	273	480	877	0·33
1949*	413	30	7	8	16	33	96	273	480	877	0·33
1950*	286	25	5	12	16	33	97	239	459	787	0·30
					Lobar pneumonia—Females						
1931	717	242	66	76	101	173	206	338	567	965	1·31
1932	671	217	54	68	94	146	194	331	577	1,006	1·25
1933	539	239	52	61	87	160	186	320	514	921	1·18
1934	588	205	56	56	91	145	180	314	584	890	1·18
1935	542	193	48	58	84	141	174	289	534	783	1·10
1936	641	194	45	57	87	122	182	308	510	841	1·11
1937	631	200	41	46	77	133	181	288	513	875	1·09
1938	658	200	38	49	74	125	162	258	456	717	1·00
1939	538	103	27	39	50	70	116	215	372	698	0·75
1940	750	120	23	27	48	69	114	208	413	741	0·79
1941	754	113	18	31	41	68	103	214	412	710	0·76
1942	597	96	17	28	38	56	90	166	305	570	0·62
1943	682	94	18	39	46	59	106	173	375	660	0·72
1944	470	53	15	22	26	46	78	133	281	556	0·53
1945	600	59	9	18	26	37	68	123	275	544	0·51
1946	557	48	10	16	25	37	62	130	274	568	0·50
1947	525	40	9	15	21	27	63	131	267	622	0·50
1948	402	29	5	10	14	23	45	90	217	507	0·38
1949	343	24	5	9	16	26	44	104	269	607	0·43
1949*	303	24	5	9	16	26	44	104	269	607	0·42
1950*	214	19	8	8	13	21	39	90	235	574	0·37

Table LXXVI.—*continued*.

Year	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. All ages
	Broncho and unspecified pneumonia—Males										
1931	12,794	2,119	113	73	100	229	433	696	1,640	3,777	1·43
1932	10,635	1,530	97	61	87	192	357	569	1,447	3,631	1·18
1933	10,183	1,638	110	58	97	237	431	671	1,394	3,724	1·23
1934	8,972	1,431	92	57	76	205	390	672	1,391	3,224	1·11
1935	9,050	1,089	65	54	81	172	352	600	1,397	3,211	1·04
1936	9,726	1,218	65	55	72	155	390	705	1,435	3,319	1·14
1937	10,378	1,233	61	43	62	161	410	776	1,494	3,622	1·21
1938	8,643	1,059	70	58	78	173	371	665	1,306	3,202	1·00
1939	7,650	631	46	36	48	113	291	595	1,102	2,935	0·89
1940	10,879	1,103	55	55	80	165	419	895	1,573	4,032	1·18
1941	11,361	908	53	45	59	126	312	728	1,252	3,277	1·02
1942	8,238	522	41	39	52	109	229	547	1,095	2,824	0·80
1943	9,051	551	42	37	40	108	285	619	1,310	3,456	0·94
1944	7,507	410	41	23	41	89	229	506	1,056	2,625	0·76
1945	7,904	386	36	26	37	66	200	524	1,013	2,664	0·75
1946	7,386	304	30	24	35	69	202	508	1,070	2,875	0·71
1947	7,293	325	28	28	32	70	208	535	1,224	3,643	0·80
1948	5,639	229	22	16	21	47	152	432	985	2,922	0·59
1949	5,299	234	16	27	26	57	167	527	1,345	3,948	0·68
1949*	5,723	234	16	27	26	57	167	527	1,345	3,948	0·68
1950*	4,849	182	29	17	29	46	142	395	1,096	3,680	0·58
	Broncho and unspecified pneumonia—Females										
1931	9,413	1,815	111	48	86	154	244	494	1,374	3,452	1·53
1932	7,874	1,460	95	51	75	127	202	470	1,208	3,216	1·32
1933	7,556	1,467	98	42	75	153	248	480	1,217	3,358	1·35
1934	7,047	1,272	79	47	63	108	211	415	1,133	2,837	1·18
1935	7,151	997	66	38	63	105	184	401	1,037	2,661	1·10
1936	7,335	1,004	65	32	58	92	191	368	1,079	2,925	1·14
1937	7,154	1,109	57	32	59	123	225	445	1,098	3,116	1·21
1938	6,543	865	64	47	52	97	170	355	890	2,575	1·00
1939	5,869	581	46	35	55	87	148	368	962	3,012	0·97
1940	8,067	918	52	38	61	97	203	448	1,199	3,581	1·23
1941	9,060	817	56	39	54	81	153	341	982	3,251	1·12
1942	6,160	501	36	33	45	74	122	270	744	2,330	0·82
1943	6,890	529	40	36	57	90	144	339	899	3,166	1·01
1944	6,042	395	32	25	40	57	96	224	686	2,184	0·77
1945	6,493	351	28	24	36	56	92	233	712	2,216	0·77
1946	6,097	281	24	21	36	53	108	261	723	2,636	0·79
1947	5,642	286	25	21	24	50	108	268	789	3,176	0·86
1948	4,569	240	15	18	22	39	88	183	598	2,385	0·64
1949	4,242	214	20	16	33	50	92	282	912	3,504	0·81
1949*	4,503	214	20	16	33	50	92	282	912	3,504	0·80
1950*	4,018	188	19	16	25	50	92	226	711	3,219	0·70

* According to 6th Revision of the International Classification.

Table LXXVII.—Pneumonia: Death rates per million living by sex and ages 15–44, 45–64 and 65 and over in standard regions and density aggregates, 1950

	15–		45–		65 and over	
	M.	F.	M.	F.	M.	F.
ENGLAND AND WALES	**53**	**45**	**405**	**215**	**2,448**	**1,920**
Conurbations	51	51	468	235	3,049	2,270
Areas outside conurbations	53	41	365	201	2,126	1,712
Urban areas with populations of 100,000 and over	51	38	481	235	2,566	2,035
Urban areas with populations of 50,000 and under 100,000 ...	57	27	383	174	2,497	1,628
Urban areas with populations under 50,000	56	47	360	192	1,961	1,640
Rural areas	51	42	278	199	1,912	1,610
NORTH						
Regions:						
Northern	85	50	507	253	2,262	1,925
East and West Ridings	67	40	464	262	2,357	1,576
North Western	64	59	466	227	2,295	1,666
Total	70	51	475	243	2,306	1,693
Conurbations:						
Tyneside	96	58	699	337	3,194	2,522
West Yorkshire	61	43	493	266	2,579	1,716
South East Lancashire	68	54	538	231	2,515	1,513
Merseyside	49	72	511	282	3,314	2,899
Total	66	56	541	264	2,778	1,967
Areas outside conurbations:						
Urban areas with populations of 100,000 and over	72	53	630	320	2,372	1,673
Urban areas with populations of 50,000 and under 100,000 ...	93	34	398	189	2,460	1,522
Urban areas with populations under 50,000	70	51	361	194	1,790	1,411
Rural areas	75	41	314	175	1,494	1,186
MIDLANDS AND EASTERN						
Regions:						
North Midland	52	37	344	239	2,159	1,960
Midland	56	51	429	243	2,547	2,086
Eastern	38	37	264	138	2,255	1,821
Total	50	43	355	212	2,331	1,962

Table LXXVII.—*continued.*

	15–		45–		65 and over	
	M.	F.	M.	F.	M.	F.
MIDLANDS AND EASTERN—*contd.*						
Conurbation (West Midland)	69	61	527	239	2,918	2,185
Areas outside conurbation:						
Urban areas with populations of 100,000 and over	*39*	*35*	406	240	2,720	2,270
Urban areas with populations of 50,000 and under 100,000 ...	*44*	*34*	333	*137*	2,721	1,657
Urban areas with populations under 50,000	49	42	304	217	2,405	2,012
Rural areas	48	38	238	184	1,901	1,658
GREATER LONDON	36	45	398	210	3,292	2,517
SOUTH						
Regions:						
Remainder of South East	52	43	351	177	2,288	1,935
Southern	35	34	260	144	2,450	1,834
South Western	49	34	389	199	2,247	1,729
Total	45	37	336	175	2,322	1,831
Urban areas with populations of 100,000 and over	*50*	*35*	368	146	2,870	2,368
Urban areas with populations of 50,000 and under 100,000 ...	*38*	*8*	371	187	2,196	1,505
Urban areas with populations under 50,000	55	46	342	147	2,206	1,720
Rural areas	39	42	279	205	2,268	1,728
WALES	51	45	465	216	1,717	1,286
Urban areas with populations of 100,000 and over	*63*	*22*	563	*195*	1,889	1,514
Urban areas with populations of 50,000 and under 100,000 ...	—	*77*	*714*	*125*	*4,500*	*1,000*
Urban areas with populations under 50,000	*57*	*51*	485	211	1,698	986
Rural areas	*41*	*57*	316	216	1,659	1,587

Table LXXVIII.—Bronchitis: Death rates per million living, 1931 to 1950

			Acute Bronchitis	Chronic Bronchitis	Bronchitis, unqualified	Bronchitis, all forms
1931	...	...	?	?	?	929
1932	...	...	?	?	?	818
1933	...	...	?	?	?	865
1934	...	...	?	?	?	738
1935	...	...	?	?	?	718
1936	...	...	179	408	251	838
1937	...	...	197	420	246	863
1938	...	...	132	327	171	630
1939	...	...	161	399	199	758
1940	...	...	282	582	241	1,106
1941	...	...	203	442	171	816
1942	...	...	156	361	124	641
1943	...	...	197	405	141	744
1944	...	...	140	383	117	640
1945	...	...	157	417	122	696
1946	...	...	143	408	109	660
1947	...	...	161	455	115	731
1948	...	...	100	392	81	573
1949	...	...	131	467	97	695
1949*	...	...	129	455	78	662
1950*	...	...	102	482	61	645

* According to 6th Revision of the International Classification.

Table LXXIX.—Bronchitis: Death rates per million living by sex and age and Comparative Mortality Indices, 1931 to 1950

Males

Year	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (all ages)
1931	2,210	147	8	7	7	24	76	159	611	2,798	—
1932	1,834	103	5	2	4	20	41	117	463	2,102	—
1933	1,521	98	4	5	5	25	75	153	481	2,513	—
1934	1,504	95	6	2	3	16	52	109	380	1,780	—
1935	1,287	70	2	3	5	14	41	91	356	1,567	—
1936	1,332	82	4	3	5	16	57	138	431	1,833	1·36
1937	1,473	85	6	3	5	12	59	143	413	1,861	1·39
1938	1,172	72	2	4	4	10	34	102	268	1,347	1·00
1939	951	65	5	3	3	13	45	103	326	1,684	1·10
1940	1,892	131	11	9	17	56	216	539	1,159	3,912	2·16
1941	2,114	115	9	4	7	27	107	322	721	2,757	1·47
1942	1,202	78	8	5	10	26	102	294	668	2,284	1·24
1943	1,293	70	7	3	7	23	99	310	764	2,877	1·40
1944	1,091	44	6	4	6	19	88	259	593	1,933	1·08
1945	1,099	55	4	4	6	19	84	273	652	2,023	1·12
1946	1,008	45	4	4	6	20	76	232	535	1,920	0·98
1947	738	49	4	4	6	15	87	272	574	2,458	1·10
1948	689	36	5	3	4	9	46	169	423	1,311	0·69
1949	477	22	2	4	5	11	53	197	523	1,860	0·82
1949*	467	19	2	4	5	11	52	197	512	1,834	0·81
1950*	541	25	4	1	4	6	30	97	346	1,505	0·60

Females — Acute Bronchitis

Year	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (all ages)
1931	1,757	137	7	5	7	18	43	140	740	3,515	—
1932	1,399	115	5	3	7	13	37	102	495	2,643	—
1933	1,182	104	8	4	7	18	46	129	526	3,088	—
1934	1,081	97	5	3	5	12	22	82	434	2,062	—
1935	1,069	67	4	3	4	8	27	79	362	1,851	—
1936	1,021	74	8	3	5	11	23	95	411	1,935	1·40
1937	1,133	63	3	2	5	15	32	97	424	2,321	1·57
1938	828	46	4	3	5	7	18	49	262	1,484	1·00
1939	914	63	8	1	4	8	22	69	323	1,694	1·18
1940	1,373	98	6	6	11	28	101	304	1,103	4,329	2·03
1941	1,683	105	5	5	10	19	59	172	744	3,273	1·50
1942	941	56	5	6	8	11	35	130	521	2,223	1·01
1943	1,079	62	4	4	8	22	47	172	663	3,071	1·34
1944	896	51	3	3	6	11	33	101	423	1,852	0·86
1945	901	47	4	4	4	16	34	128	482	2,172	0·97
1946	657	38	4	5	7	12	25	104	425	2,105	0·88
1947	546	30	4	3	3	13	34	135	440	2,322	0·95
1948	493	29	3	2	1	8	20	60	259	1,329	0·55
1949	410	19	4	5	4	10	26	87	386	1,951	0·77
1949*	399	19	4	4	4	10	25	88	384	1,943	0·77
1950*	367	23	2	3	5	11	17	61	269	1,635	0·62

Table LXXIX.—*continued.*

Chronic Bronchitis

	Males												Females										
Year	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (all ages)	0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (all ages)
1931	26	12	5	12	26	91	248	527	1,490	4,820	—	27	3	6	11	11	20	70	242	952	3,219	—
1932	33	16	6	16	19	82	210	431	1,244	3,934	—	27	9	4	8	14	22	60	195	720	2,664	—
1933	14	11	6	14	27	78	249	478	1,235	3,873	—	14	9	4	11	13	27	75	208	688	2,579	—
1934	18	12	6	16	20	56	220	470	1,120	3,274	—	15	9	4	9	15	23	47	164	635	2,094	—
1935	14	8	8	19	26	79	217	408	1,048	3,333	—	7	11	5	13	12	28	44	152	538	1,926	—
1936	27	8	4	18	18	60	250	522	1,161	3,590	1·23	18	8	5	11	14	23	58	176	621	2,072	1·40
1937	34	10	6	19	21	69	255	543	1,136	3,279	1·21	18	6	5	10	14	23	61	189	578	1,958	1·35
1938	23	13	7	16	31	45	196	433	929	2,809	1·00	10	8	6	11	13	18	45	121	412	1,505	1·00
1939	26	6	5	21	22	61	236	552	1,067	3,075	1·16	14	6	6	13	12	25	53	161	474	1,803	1·21
1940	39	16	9	27	48	156	737	1,970	3,642	9,616	1·72	42	20	10	21	26	55	163	629	1,927	6,490	1·82
1941	56	27	8	20	38	119	520	1,446	2,762	7,638	1·31	22	17	5	17	15	42	123	394	1,368	4,985	1·32
1942	36	18	8	20	36	105	449	1,255	2,314	5,998	1·20	21	12	6	18	18	35	95	281	1,026	3,555	0·98
1943	28	15	7	20	40	108	492	1,351	2,495	6,521	1·16	22	13	4	14	22	46	113	337	1,145	3,983	1·11
1944	31	8	6	19	37	100	441	1,411	2,495	5,778	1·22	15	7	6	13	23	39	110	299	1,009	3,360	0·96
1945	25	9	8	16	33	101	488	1,527	2,798	5,747	1·18	21	12	5	12	19	39	123	367	1,116	3,413	1·03
1946	22	15	7	15	32	98	461	1,526	2,729	5,713	1·33	12	10	7	13	18	41	103	336	1,034	3,295	0·97
1947	20	7	5	11	28	93	495	1,690	3,157	6,786	1·15	14	11	9	10	19	47	123	329	1,120	3,465	1·03
1948	20	7	8	11	24	75	414	1,462	2,991	5,410	1·31	16	14	5	13	17	37	94	278	880	2,822	0·83
1949	13	7	3	12	21	82	470	1,686	3,419	6,245	1·31	11	7	5	12	15	39	112	363	1,192	3,516	1·06
1949*	11	1	2	3	8	61	413	1,618	3,362	6,563	1·31	3	2	1	2	6	22	92	324	1,146	3,705	1·06
1950*	39	26	2	3	8	62	426	1,727	3,634	6,938	1·36	18	1	0	3	5	22	79	325	1,141	3,787	1·02

Table LXXIX.—continued.

Bronchitis Unqualified

Year	Males 0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (All ages)	Females 0–	1–	5–	15–	25–	35–	45–	55–	65–	75 and over	C.M.I. (All ages)
1931	2,026	125	5	4	10	34	127	277	1,233	6,120	—	1,497	95	5	5	6	14	49	197	1,021	6,371	—
1932	1,639	88	4	2	11	25	81	203	827	4,985	—	1,460	84	6	3	4	11	33	129	687	4,825	—
1933	1,362	73	5	4	7	28	110	225	827	4,611	—	1,107	71	4	4	6	16	35	136	701	4,753	—
1934	1,110	60	3	4	4	18	76	188	642	3,534	—	777	67	1	6	6	10	30	91	520	3,252	—
1935	1,038	44	3	3	3	17	68	165	557	3,220	—	823	57	3	2	3	10	24	85	421	2,760	—
1936	1,096	38	3	3	7	21	91	198	562	3,345	—	690	42	4	2	2	12	24	89	431	2,980	—
1937	929	44	3	2	5	18	82	169	554	3,158	—	684	40	3	2	3	8	27	94	439	2,860	—
1938	710	31	4	2	0	11	54	146	399	2,181	—	522	36	3	3	3	4	16	50	253	1,894	—
1939	628	34	2	2	5	14	63	167	412	2,172	—	491	41	2	1	3	6	15	61	294	2,109	—
1940	1,215	92	3	1	12	47	208	592	1,210	3,518	—	845	77	3	5	10	26	65	258	939	3,234	—
1941	1,536	68	3	6	5	29	121	397	856	2,314	—	1,108	50	2	6	5	10	47	141	571	2,347	—
1942	828	29	3	5	6	20	88	296	655	1,941	—	566	27	2	1	4	11	39	107	389	1,538	—
1943	835	36	4	2	4	19	108	302	681	1,987	—	513	38	2	1	3	12	33	107	501	1,908	—
1944	680	30	2	2	4	15	85	265	598	1,649	—	464	23	1	3	5	9	29	87	360	1,436	—
1945	630	18	3	3	3	16	84	281	601	1,834	—	437	18	2	3	5	8	22	107	358	1,435	—
1946	458	16	1	1	3	14	68	246	501	1,631	—	331	14	1	2	6	7	24	83	307	1,492	—
1947	327	18	1	2	5	11	63	246	531	1,857	—	296	21	2	1	3	6	21	80	329		—
1948	226	16	1	3	2	7	46	185	420	1,252	—	217	8	1	2	2	5	13	55	209	988	—
1949	288	8	1	2	2	8	40	206	505	1,505	—	191	7	1	1	1	5	18	69	270	1,254	—
1949*	269	9	1	2	2	5	26	147	396	1,137	—	171	7	1	1	2	4	14	61	249	1,025	—
1950*	216	13	2	0	1	4	18	98	316	933	—	182	10	2	0	1	2	11	45	172	775	—

* According to 6th Revision of International Classification.

Table LXXX.—Bronchitis: Death rates per million living by sex at ages 15–44, 45–64 and 65 and over in standard regions and density aggregates, 1950

	15–		45–		65 and over	
	M.	F.	M.	F.	M.	F.
ENGLAND AND WALES	32	18	1,081	252	5,853	3,160
Conurbations	38	19	1,369	314	7,401	3,814
Areas outside conurbations	28	18	898	212	5,025	2,774
Urban areas with populations of 100,000 and over	32	22	1,222	266	6,414	3,213
Urban areas with populations of 50,000 and under 100,000 ...	44	22	1,062	262	5,570	2,709
Urban areas with populations under 50,000	31	15	946	229	5,087	2,889
Rural areas	17	16	546	127	3,949	2,356
NORTH						
Regions:						
Northern	37	31	1,325	319	5,184	3,358
East and West Ridings	36	20	1,362	325	6,835	3,392
North Western	58	26	1,645	468	7,829	4,376
Total	46	26	1,487	394	6,912	3,869
Conurbations:						
Tyneside	51	47	1,882	327	7,722	4,891
West Yorkshire	32	30	1,502	410	7,434	3,578
South East Lancashire	64	24	2,082	620	9,466	5,578
Merseyside	45	35	1,568	324	8,275	3,506
Total	50	31	1,792	465	8,421	4,496
Areas outside conurbations:						
Urban areas with populations of 100,000 and over	26	24	1,685	346	6,936	3,442
Urban areas with populations of 50,000 and under 100,000 ...	84	29	1,504	371	6,580	3,403
Urban areas with populations under 50,000	53	17	1,192	352	5,911	3,631
Rural areas	27	17	665	218	4,000	2,461
MIDLANDS AND EASTERN						
Regions:						
North Midland	28	23	860	225	5,924	3,080
Midland	34	28	1,282	276	6,503	3,680
Eastern	9	6	591	107	4,089	2,132
Total	26	20	952	211	5,554	2,997

Table LXXX.—*continued.*

	15–		45–		65 and over	
	M.	F.	M.	F.	M.	F.
MIDLANDS AND EASTERN (*contd.*)						
Conurbation (West Midland)	49	24	1,607	340	7,435	4,286
Areas outside conurbations:						
Urban areas with populations of 100,000 and over	37	21	1,032	232	6,585	2,918
Urban areas with populations of 50,000 and under 100,000 ...	22	21	906	226	6,349	2,567
Urban areas with populations under 50,000	18	24	836	190	5,862	2,849
Rural areas	10	13	512	105	4,132	2,467
GREATER LONDON	26	9	987	191	6,599	3,196
SOUTH						
Regions:						
Remainder of South East	24	11	594	133	3,827	2,083
Southern	15	9	544	125	3,822	2,283
South Western	25	11	644	141	3,929	2,391
Total	21	11	597	134	3,863	2,253
Urban areas with populations of 100,000 and over	37	10	772	187	4,768	3,094
Urban areas with populations of 50,000 and under 100,000 ...	28	8	647	173	3,500	1,856
Urban areas with populations under 50,000	22	3	652	137	4,007	2,147
Rural areas	14	19	390	76	3,529	1,995
WALES						
Regions:						
Wales I and II	36	25	1,221	241	6,583	3,610
Urban areas with populations of 100,000 and over	39	51	1,577	341	8,593	4,286
Urban areas with populations of 50,000 and under 100,000 ...	—	77	1,714	375	16,000	6,000
Urban areas with populations under 50,000	44	17	1,194	211	6,830	3,594
Rural areas	29	13	878	157	5,122	2,913

DEATHS FROM VIOLENT CAUSES

Deaths from violent causes numbered 18,889 in 1950, compared with 18,513 in 1949 and 18,211 in 1948. Of this total, motor vehicle and other road vehicle accidents formed 24 per cent, the same percentage was due to people taking their own lives, and accidental falls killed 22 per cent. On the basis of the 1950 Life tables (page 13) these three types of accident were responsible for the loss of 320,013 expected years of life, the average estimated loss per person in each group being: suicide, males 22·3 years, females 25·9 years; road accidents, 35·4 years and 34·7 years; falls, 17·9 years and 9·3 years.

Diagram 10 shows the trend in the three-yearly moving average of crude death rates during 1940 to 1950, for all causes and for violent causes. The general downward trend in the rates for violent deaths is greater than that in rates for all causes. The average rates for each sex declined less swiftly in the years after the war.

Table LXXXI (page 181) shows the percentage of total deaths (including those of non-civilians) attributed to violence at various periods since 1901. Among males, the proportions were highest at ages 15–34 in each period; in 1950, 30 per cent of deaths of young men were due to violent causes, one third less than the percentage during 1941–45. From 1901 to 1945 the proportion of female deaths due to violence was highest at ages 15–34, but during the five years 1946–50, at ages 0–14. During the whole fifty years, the percentages for males were greater than for females at ages under 65, but from 1946 onwards women of 65 and over had higher percentages of violent deaths than had elderly men.

Table LXXXII (page 181) shows the rates for violent deaths per million living by sex and age during 1901 to 1950. Both male and female rates were at a minimum in the age group 10–14. Female rates then steadily increased with age; male rates in most years reached a peak at ages 20–24, and then, after a decrease in the next age-group, they also increased with age. Except at ages 75 and over, male rates were generally in excess of female in the corresponding age group.

Railway accidents took rather less toll of male lives in 1948–50 than in previous years since 1940 (Table LXXXIII, page 182). Motor vehicle and other road accident death rates were higher in 1950 than 1949, male rates increasing from 153 per million to 165 and female from 45 to 50. The male death rate of 74 for accidental falls was the lowest in the period 1940–50, but the female rate of 113 was higher than in any of the six preceding years. Death rates from accidental burns, which had shown a general downward trend from 1940, were the same in 1950 as in 1949—males 9, females 16.

Motor and Other Road Vehicle Accidents

The 6th Revision of the International Statistical Classification (page 232) divides motor vehicle accidents into traffic accidents, which are those occurring on a public highway, and non-traffic accidents which occur elsewhere. In 1950, 3,099 males and 1,035 females died from motor-vehicle traffic accidents 88 males and 8 females from non-traffic accidents and 294 males and 95 females

Diagram 10

ALL CAUSES

ALL EXTERNAL CAUSES

Males

Females

Males

Females

Rate per ten thousand

Middle year of triennium
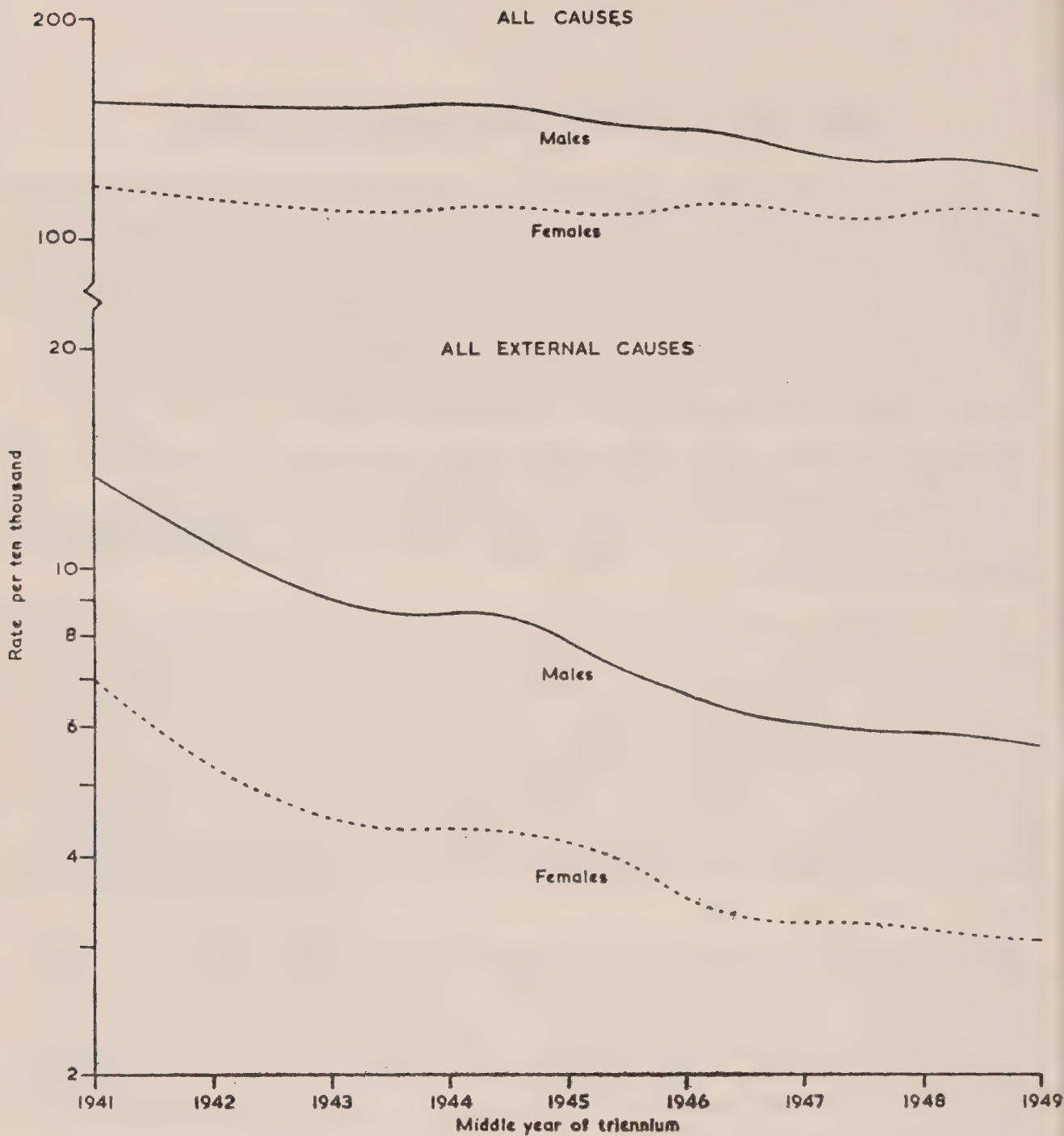
Violent causes: [Three-yearly moving averages of crude death rates per 10,000 living, by sex, 1940–50

from other road vehicle accidents. The distribution of these deaths in four age groups is shown in Table LXXXIV (page 182).

There were 262 deaths of children under five on public highways. Of men of the working ages who died, 47 per cent were motor cycle riders or passengers, 500 of them being in the age-group 20–29. Fatal accidents to people aged 65 and over numbered 935, 749 being deaths of pedestrians; while lack of agility may partly account for this, it is possible that deafness may have been a contributory cause.

There are no separate figures prepared for England and Wales of the numbers of persons seriously injured or slightly injured in road accidents, although such figures are available for Great Britain as a whole. The numbers of persons killed, seriously injured or slightly injured in road accidents and the ratio of

these per 1,000 deaths, as shown by the Ministry of Transport's monthly road accident statements for 1950, were as follows:—

	Deaths		Seriously injured		Slightly injured	
	Numbers	Per 1,000 deaths	Numbers	Per 1,000 deaths	Numbers	Per 1,000 deaths
Total	5,012	1,000	48,652	9,707	147,661	29,461
Pedestrians						
Under 15	674	134	5,337	1,065	17,656	3,523
15 and over ...	1,579	315	8,798	1,755	21,509	4,291
Pedal cyclists						
Under 15	126	25	2,122	423	7,497	1,496
15 and over	679	135	8,393	1,675	27,550	5,497
Motor cyclists ...	935	187	9,514	1,898	18,379	3,667
Others*	1,019	204	14,488	2,891	55,070	10,988

Diagram 11
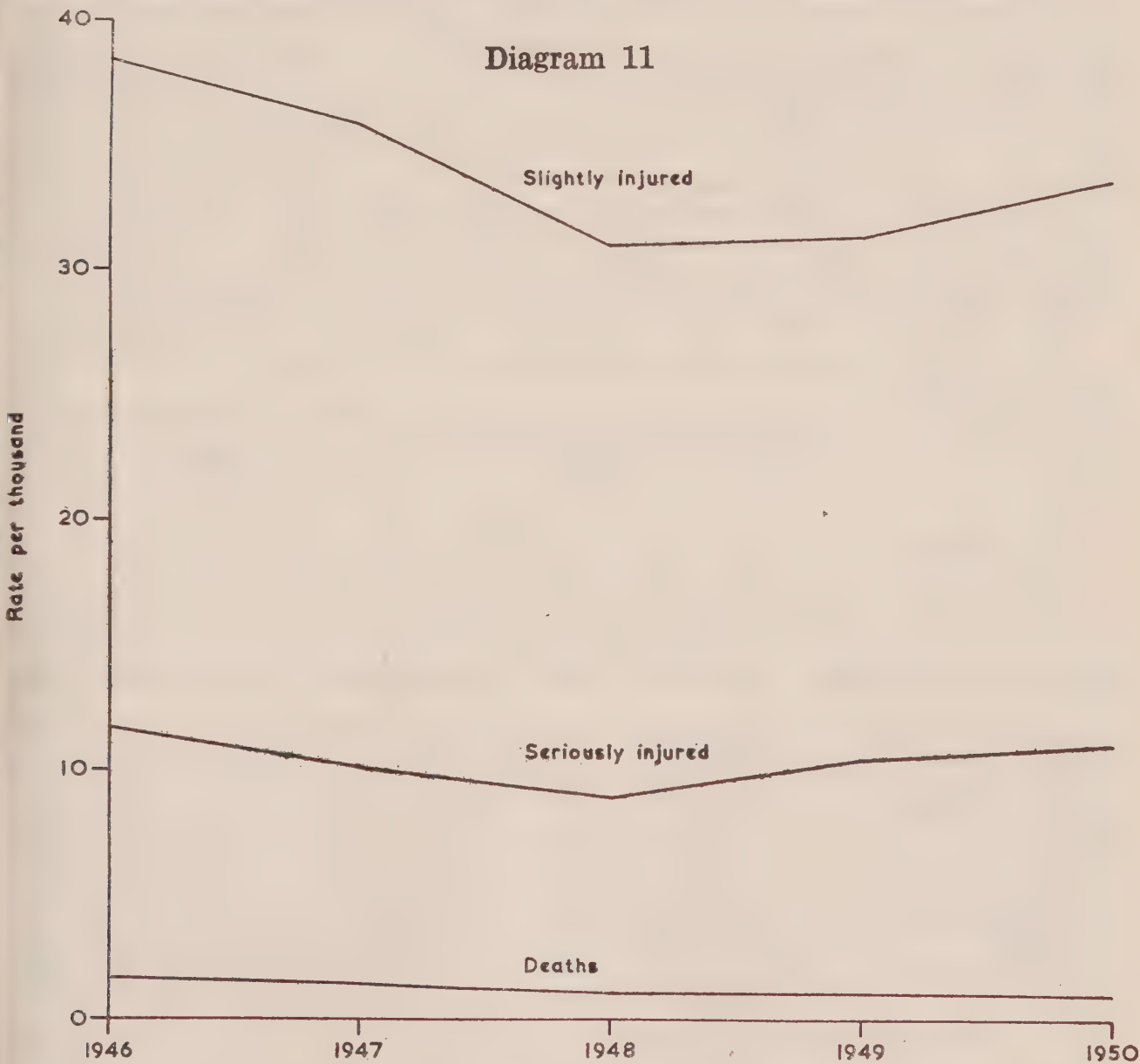
Road traffic accidents: Numbers of persons dying and seriously or slightly injured in road accidents in Great Britain per 1,000 vehicles with licences current at any time in the September quarter, 1946 to 1950

* Including a number of passengers under 15 who in 1950 accounted for 68 deaths, 1,010 seriously injured and 5,290 slightly injured.

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For every person killed in road accidents in Great Britain, there were ten persons seriously injured and thirty slightly injured. The ratio of serious and minor accidents to deaths was greatest for pedal cyclists aged under 15–17 serious and 60 minor injuries to one death.

The number of deaths, serious and slight injuries per 1,000 vehicles with licences current at any time in the September quarter of the year are shown for 1946–50 in Diagram 11. While the ratio of deaths shows a very slight downward trend, those for serious and slight injuries reached minima in 1948, since when they have gradually increased.

Table LXXXV (page 183) shows death rates per million living due to motor vehicle traffic accidents by sex and age, and Comparative Mortality Indices. Rates for 1949 are shown according to both the 5th and 6th Revisions of the International List. From the table and from Diagram 12 it will be seen that male rates are considerably in excess of female in corresponding age groups. In 1950 the male rates increased in each age group from 15 to 74 and female rates also increased except at ages 5 to 14 and 65–74.

Death rates in the standard regions and density aggregates according to area of residence are shown in Table LXXXVI (page 184), for four age groups. Male rates in England and Wales and in the density groups followed the same age trend—the rates at 15–44 were higher than at 0–14, then decreased at ages 45–64 and increased again at 65 and over; female rates were lower at 15–44 than at 0–14 and increased successively in the two higher age groups. Both male and female rates at ages 15–44 and 45–64 were higher for residents of rural areas than for the conurbations or urban areas; and at ages under 15 highest for the urban areas with 50,000–100,000 inhabitants. Rates for men aged 65 and over were highest for the medium-sized urban areas, but those for elderly women were highest for urban areas of under 50,000 population.

The regional rates expressed as percentages of the England and Wales rates were as follows:—

Region	Males					Females				
	0–	15–	45–	65 and over	All ages	0–	15–	45–	65 and over	All ages
ENGLAND AND WALES ...	100	100	100	100	100	100	100	100	100	100
Northern...	135	91	96	112	101	126	135	90	74	102
East and West Ridings...	102	93	91	113	97	87	74	73	71	76
North Western	129	94	107	128	107	117	87	117	93	102
North Midland	101	91	119	69	93	91	139	83	101	102
Midland	84	123	106	153	117	96	117	154	109	113
Eastern	76	110	112	84	101	91	113	139	76	104
Greater London... ...	87	74	82	92	80	79	96	83	156	107
Rest of South East ...	92	104	104	66	95	75	91	100	78	91
Southern...	64	158	118	123	132	113	57	83	99	93
South Western	90	117	99	56	98	132	70	120	82	104
Wales	136	94	85	75	95	106	135	46	73	87

Male rates for Greater London were below the national average in each age group, as were female rates for the East and West Ridings. Rates varied considerably between different age groups in the same region; thus in the Southern region the boys' rate was only 64 per cent of the national average, whereas at 15–44 it was 158 per cent. The Midland region had high percentages or both sexes except at ages under 15.

Diagram 12
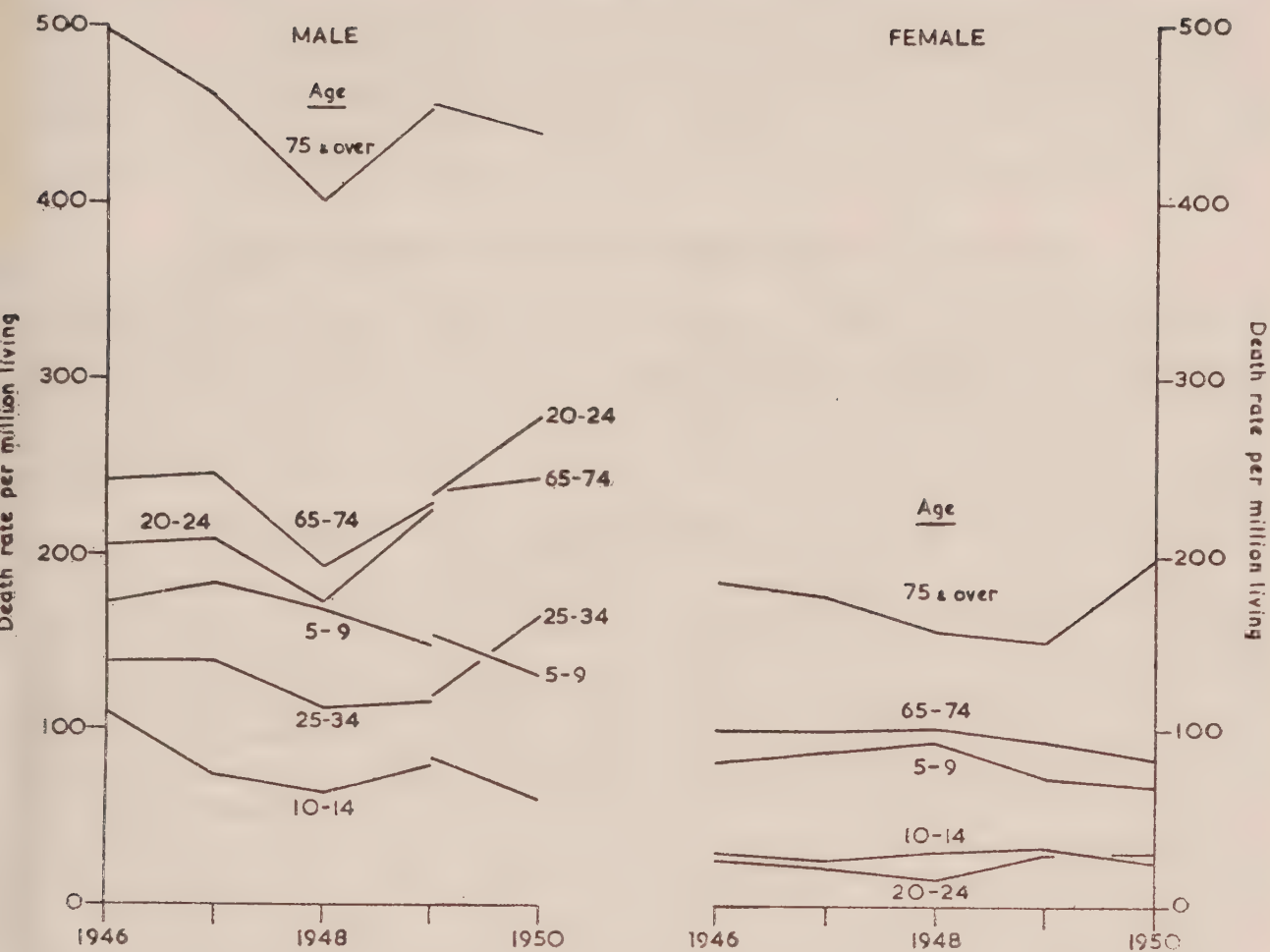
Motor vehicle accidents: Death rates per million living by sex and age, 1946 to 1950

Table LXXXVII (page 185) shows the numbers of deaths of various types of road users according to whether they were injured in motor vehicle accidents or other road vehicle accidents. The variation in the number of motor cyclist deaths is noteworthy. The male averages for 1936–40, 1941–45, 1946–49 and for the year 1950 were 1,018, 651, 659, 986, the latter showing an increase of 33 per cent over that for 1949. The number of deaths of male pedestrians in 1950 was 53 per cent of the average for 1936–40 and that of females 72 per cent. The number of pedestrians, pedal cyclists and motor cyclists fatally injured in non-traffic accidents was small.

Owing to the change in classification, it is impossible to preserve continuity in analysis of deaths of various types of road users according to the vehicle involved in the accident. Some attempt has, however, been made in Table LXXXVIII (page 186) to show the average deaths for 1937–38, 1947–48 and 1949–50 with what measure of comparability is possible. The number of fatal accidents to pedestrians and pedal cyclists due to motor goods vehicles has declined since 1937–38, although the number of such vehicles on the roads has considerably increased.* Deaths of motor cyclists from accidents involving goods transport vehicles have increased, and those involving motor or trolley buses, although lower in 1947–48 than in 1937–38, increased in 1949–50.

Table LXXXIX (page 187) gives details of deaths from road accidents according to the types of vehicles involved. Deaths in 1950 of male pedestrians due to

* In 1951 the increase was estimated by the Ministry of Transport at + 64 per cent (Road Accidents, 1951, H.M.S.O., 1952). No comparable figure for 1950 is available.

accidents involving motor goods vehicles were the lowest in the eleven years recorded in the table and 18 per cent below the average for 1947 and 1948; deaths of female pedestrians showed relatively small fluctuations in the five years 1946 to 1950. Deaths of male motor cyclists in non-collision accidents were lower in 1950 than in 1946–49. Deaths of male pedal cyclists due to collision with motor goods vehicles were higher than in the four preceding years.

Deaths from violent causes according to nature of injury

In the 6th Revision of the International List violent deaths are classified by the nature of the injury causing death. In cases of multiple injuries about which precise information is given the combination codes may be used, for example N804 fracture of skull or face with fracture of other bones. Where the different injuries are not specified N869, multiple extreme injury not otherwise defined, may be used. For other combinations of injuries, the assignment will be in order of the arrangement in the Classification. Thus burns of legs and fractured skull would be assigned to fractured skull whereas burns and carbon-monoxide poisoning would be classed to burns. Table XC (page 189) shows the proportion per 1,000 violent deaths according to the nature of the injury. Fractured skulls occurred in 61 per cent of male and 59 per cent of female deaths from motor vehicle accidents, but in only 40 per cent of male and 53 per cent of female deaths from other transport accidents. A higher proportion of female than male deaths in transport accidents were attributed to fractures of limbs and to head injuries other than fractures. There was a marked sex-difference in the nature of fatal injuries incurred in falls. Thirty-one per cent of male deaths were assigned to fractures of the skull, compared with 8 per cent of female deaths. The percentages due to fractures of spine or trunk bones were 12 and 5 for males and females respectively. Fractured limbs accounted for 74 per cent of fatal falls amongst women but only 38 per cent amongst men.

Accidental falls

In 1950, 1,577 men and 2,551 women died as a result of falls. Table XCI (page 190) shows the trend in death rates from falls per million living by sex and age, rates for 1949 being shown according to both the 5th and 6th Revisions of the International List. The Comparative Mortality Indices for both males and females have decreased since 1936–40. From this period onwards also, rates for men at each age except 20–24 show a fluctuating downward trend. Female rates at ages 5–44 were based on too few deaths to be of any significance, but in the remaining age groups there was a general downward trend from 1936–40 onwards.

Table XCIII (page 192) shows the number of falls analysed by type and whether or not they occurred at work or at home, these categories not being mutually exclusive. Falls from one level to another were the commonest cause of male deaths (35 per cent) and falls on the same level the most frequent in the case of women (44 per cent). Of falls which occurred at home 80 per cent of the men and 92 per cent of the women were 65 and over. Forty-three per cent of fatal falls of women at home were falls on the same level.

Accidental burns

In 1950 the number of deaths due to fire and explosion of combustibles were males 180, and females 366. The corresponding death rates per million living were males 9, and females 16. The percentage age distribution of deaths was as follows:—

	0–	5–	15–	35–	55–	65–	75–	80–	85 and over	Total
Males	14	7	11	11	8	12	15	14	8	**100**
Females ...	12	9	5	9	6	19	16	14	10	**100**

Hence 37 per cent of male and 40 per cent of female deaths from burns happened to old people of 75 and over. The distribution of burns by place of occurrence is shown in Table XCII (page 191). Sixty-one per cent of female deaths were attributed to clothing catching alight, domestic fires being the largest single cause.

Deaths following vaccination or other prophylactic inoculation

This section includes deaths classified to E940–E942, vaccinia, postvaccinal encephalitis and other complications of smallpox vaccination, and to E943, E944, post-immunization jaundice and hepatitis and other complications of prophylactic inoculation. Deaths classified to some other condition as the underlying cause, but with vaccination or inoculation either mentioned on the certificate or ascertained by enquiry to have been associated with the death are also mentioned here.

In 1950 two deaths were assigned to complications of vaccination against smallpox :—

1. Male, aged 18, certified as encephalitis of unknown origin probably due to vaccination.
2. Male, aged 67, certified as purulent bronchitis, chronic bronchiectasis and cerebral thrombosis due to vaccination.

In addition there was one death in which vaccination was mentioned in the death certificate, but which was assigned to another cause :—

Female, aged 26, certified as chronic cerebral abscess causing pressure on vital structure within the brain from natural causes. Recent re-vaccination was also recorded. The death was assigned to intracranial and intra-spinal abscess.

The following deaths due to preventive inoculation against diseases other than smallpox were also recorded in 1950 :—

1. Male, aged 15, certified as acute anaphylactic shock due to injection of anti-tetanus serum given for a dog bite.
2. Male, aged 16, certified as anaphylactic shock following an injection of ½ c.c. of anti-gas gangrene serum for leg injuries, followed by a further injection after the elapse of one minute.
3. Female, aged 42, certified as anaphylactic shock following an injection of anti-tetanus serum given for a cut to her finger from a knife.

The following deaths, in which inoculation was recorded on the death certificates, were assigned to other causes :—

1. Male, aged 27, certified as anaphylactic shock following anti-typhoid and paratyphoid vaccine accelerating disseminated sclerosis. The death was assigned to multiple sclerosis.
2. Female, aged 8, certified as encephalitis of unknown origin. Reference was also made on enquiry to recent inoculation against diphtheria. The death was assigned to encephalitis (other than acute infectious).

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Suicide

In 1950, 2,885 men and 1,586 women committed suicide, death rates per million at separate ages being:—

	15–	25–	35–	45–	55–	65–	75 and over
Males	46	70	122	222	323	416	421
Females	17	34	75	124	157	153	115
Ratio M/F	2·7	2·1	1·6	1·8	2·1	2·7	3·7

Whereas male rates increased with increasing age, female rates reached a maximum at ages 55–64 and then declined. The ratio of male to female rates decreased from 2·7 at ages 15–24 to 1·6 at ages 35–44 and then increased to 3·7 at ages 75 and over.

Table XCIV (page 192) shows regional suicide rates for 1947–50. Male rates increased in each region with increasing age, but female rates at ages 45–64 were higher than those at 65 and over except in the East and West Ridings, North Western, North Midland and London and South Eastern regions. The coefficient of variation between regions was highest at ages 65 and over and lowest at ages 45–64 for both sexes.

From Table XCV (page 193) it is apparent that male rates in each age group were equal to or above the national average in the North Western and Southern regions, as were female rates in London and the South East. In the Eastern region and in Wales both male and female rates were below the national average.

Crude suicide rates per million persons in Metropolitan and County boroughs are shown by regions in Table XCVII (page 194) with the ranking of rates in descending order of magnitude.

Hampstead had the highest rate, 287 per million, followed by Holborn 270, Burnley 259 and Westminster 257. High rates also occurred in the seaside boroughs of Eastbourne 258, Bournemouth 193, Blackpool 187 and Brighton 184; this may be due to these places having a high proportion of elderly retired people in the population combined with the high suicide rates among the elderly. At the other end of the scale rates of less than 60 per million were experienced by Carlisle and Wigan 59, Greenwich and Stockport 56, Plymouth 53, Bermondsey and Hammersmith 50, Cardiff 45, St. Helens 44 and Wakefield 33. There is considerable variation within regions even where external conditions of life might be fairly similar as for instance in the industrial boroughs of the North West region. Here Burnley has the highest rate of 259 and St. Helens the lowest of 44, while Blackburn, Oldham and Stockport have rates of 135, 159 and 56 respectively. Of large boroughs outside the Metropolitan area Manchester had a rate of 95, Liverpool of 70 and Birmingham of 115.

Table XCVI (page 193) shows the crude death rates according to the means used to effect suicide. The use as an agent by both men and women of analgesic and soporific drugs, a group which includes the barbiturates and barbitones, shows a marked increase in 1948–50 over the previous years. The use by men of cutting and piercing instruments had decreased a little, other rates continued much the same.

Table XCVIII (page 195) shows that coal gas poisoning was the commonest means of committing suicide in each sex-age group. Hanging and strangulation ranked second in importance for men of each age group and other forms of poisoning for women except at ages 55–74 where drowning was more common. Comparatively few women used firearms.

Table LXXXI.—Violence: Proportion of deaths attributed to violent causes per 100 deaths from all causes, by sex and age, 1901–45 and 1946 to 1950

	Males					Females				
	0–	15–	35–	65 and over	All ages	0–	15–	35–	65 and over	All ages
1901–10 ...	3·22	12·88	7·22	2·31	5·05	2·85	3·06	2·18	1·54	2·31
1911–20 ...	3·74	15·69	7·16	2·29	5·69	2·95	2·97	2·26	1·63	2·31
1921–30 ...	4·43	15·49	7·06	2·37	5·48	3·06	4·02	2·74	1·79	2·49
1931–35 ...	5·60	20·29	7·37	2·55	6·05	4·11	5·54	3·31	2·25	3·04
1936–40 ...	7·30	29·58	8·67	2·89	7·30	5·73	9·52	4·82	2·83	4·10
1941–45 ...	10·34	46·29	9·46	2·85	9·13	8·25	12·26	5·58	2·74	4·56
1946	7·86	25·39	6·09	2·22	5·08	5·91	5·84	3·45	2·27	3·00
1947	7·65	24·86	6·09	2·14	4·89	5·86	5·53	3·55	2·22	2·97
1948	8·91	24·61	6·04	2·13	4·88	7·06	5·56	3·70	2·18	3·02
1949	9·47	27·04	5·87	1·96	4·62	7·02	5·80	3·34	2·01	2·72
1950	9·20	30·36	5·93	1·94	4·56	7·24	6·59	3·44	2·13	2·80

Table LXXXII.—Violence: Death rates per million living by sex and age, 1901–45 and 1946 to 1950

	All ages	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75 and over
Males												
1901–10 ...	827	1,231	329	262	447	555	677	914	1,257	1,623	1,818	2,621
1911–20 ...	857	934	395	304	596	902	828	894	1,082	1,395	1,715	2,757
1921–30 ...	709	683	375	243	449	584	536	658	917	1,259	1,616	2,842
1931–35 ...	770	697	370	228	533	739	602	640	921	1,271	1,599	3,358
1936–40 ...	968	775	420	297	651	1,121	826	825	1,046	1,475	1,835	3,887
1941–45 ...	1,167	897	612	435	935	2,192	1,263	870	1,008	1,323	1,691	3,183
1946 ...	622	688	328	251	414	565	453	478	582	864	1,213	2,612
1947 ...	628	664	381	228	398	528	465	465	633	850	1,210	2,786
1948 ...	562	585	318	179	350	458	398	406	574	844	1,136	2,320
1949 ...	569	547	299	194	386	509	387	433	583	805	1,084	2,554
1949* ...	567	541	298	193	386	508	387	431	579	797	1,085	2,556
1950* ...	562	461	252	153	376	555	423	418	579	807	1,120	2,451
Females												
1901–10 ...	329	1,059	226	81	103	111	135	198	307	423	752	2,287
1911–20 ...	300	767	234	98	117	120	127	179	272	382	728	2,364
1921–30 ...	283	487	182	71	117	127	126	168	268	397	716	2,516
1931–35 ...	346	505	201	81	142	155	161	194	297	443	878	3,044
1936–40 ...	477	570	230	137	222	233	235	281	412	595	1,116	3,707
1941–45 ...	499	687	322	206	256	274	276	307	404	552	959	3,064
1946 ...	326	494	149	70	83	86	116	152	225	351	661	2,725
1947 ...	334	503	162	63	82	81	109	145	237	356	703	2,707
1948 ...	306	434	153	63	72	76	99	137	231	347	614	2,341
1949 ...	306	387	128	63	81	92	85	128	212	336	617	2,513
1949* ...	302	378	128	63	79	92	81	126	212	330	612	2,492
1950* ...	308	338	127	47	80	81	79	125	223	323	606	2,698

* According to the 6th Revision of the International Classification.

Table LXXXIII.—Violent deaths: Annual crude death rates per million living (males and females) and total numbers of deaths (persons), 1940 to 1950

		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
All external causes	M.	1,534	1,538	892	814	996	755	624	623	558	569	562
	F.	888	785	420	381	541	380	325	333	306	302	308
Numbers ...	P.	47,200	43,374	23,993	21,481	27,809	20,662	18,776	19,783	18,211	18,513	18,889
Railway accidents	M.	25	26	26	27	28	25	22	23	17	16	16
	F.	2	2	2	3	3	3	3	2	3	1	2
Numbers ...	P.	502	487	485	499	512	467	464	493	409	358	369
Motor vehicle and other road accidents.	M.	287	309	234	191	202	175	167	160	141	153	165
	F.	71	80	62	54	60	55	51	51	48	45	50
Numbers ...	P.	6,768	7,049	5,264	4,264	4,554	4,081	4,215	4,253	3,920	4,175	4,619
Accidental poisoning... ...	M.	15	17	14	12	14	18	15	16	16	16	15
	F.	10	10	9	8	10	13	14	17	13	14	17
Numbers ...	P.	497	503	428	367	425	585	562	678	617	658	718
Accidental falls ...	M.	161	145	127	118	107	103	88	94	78	81	74
	F.	157	136	120	114	111	110	110	110	100	105	113
Numbers ...	P.	6,351	5,436	4,699	4,376	4,133	4,087	4,056	4,288	3,808	4,026	4,128
Accidental burns	M.	40	44	41	32	31	27	20	27	13	9	9
	F.	45	43	39	32	32	31	27	27	20	16	16
Numbers ...	P.	1,802	1,781	1,614	1,323	1,302	1,232	1,075	1,233	809	837	795
Accidental mechanical suffocation.	M.	21	24	24	24	27	29	30	34	26	25	23
	F.	11	15	13	11	16	15	18	21	17	16	14
Numbers ...	P.	634	721	687	625	782	796	952	1,128	911	873	810
Suicide	M.	159	135	125	134	135	136	144	137	145	147	136
	F.	75	62	62	63	58	66	75	76	79	75	70
Numbers ...	P.	4,517	3,657	3,416	3,528	3,447	3,770	4,312	4,374	4,718	4,720	4,471
Other external causes ...	M.	826	838	301	276	452	242	138	141	122	122	124
	F.	517	437	113	96	251	87	27	29	26	30	26
Numbers ...	P.	26,129	23,740	7,400	6,499	12,654	5,644	3,140	3,336	3,019	2,866	2,979

Table LXXXIV.—Motor vehicle and other road vehicle accidents. Numbers of deaths in 1950

Age group	Motor vehicle traffic accidents					Motor vehicle non-traffic accidents		Other road vehicle accidents		
	Total	Pedestrian	Pedal cyclist	Motor cyclist or passenger	Others	Total	Pedestrian	Total	Pedestrian	Pedal cyclist
Males										
0–	158	139	7	2	10	—	—	6	5	1
5–	284	196	66	1	21	7	3	22	3	17
15–	2,068	362	329	962	415	68	21	179	24	122
65 and over	589	443	73	14	59	13	8	87	44	28
All ages	3,099	1,140	475	979	505	88	32	294	76	168
Females										
0–	104	102	—	—	2	6	5	1	1	—
5–	138	111	17	5	5	1	1	11	2	5
15–	447	207	63	72	105	1	—	46	14	24
65 and over	346	306	—	2	38	—	—	37	34	2
All ages	1,035	726	80	79	150	8	6	95	51	81

Table LXXXV.—Motor vehicle accidents: Death rates per million living by sex and age, and Comparative Mortality Indices by sex, 1931–45 and 1946 to 1950

	All ages	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75 and over	C.M.I. (1938 =1·00)
Males													
1931–35	208	137	228	93	204	368	210	133	153	206	363	678	1·12
1936–40	216	130	188	86	176	363	209	152	171	257	411	749	1·01
1941–45	199	143	255	113	152	227	193	149	160	228	353	556	0·92
1946 ...	153	119	173	109	161	205	139	109	102	160	241	498	0·73
1947 ...	146	95	183	75	127	209	139	106	111	147	246	460	0·70
1948 ...	126	108	168	63	122	173	112	79	97	142	194	400	0·60
1949 ...	140	102	149	80	147	226	117	103	101	137	229	451	0·67
1949*...	142	104	153	83	150	232	118	105	101	138	232	454	0·68
1950*...	151	83	131	60	177	279	164	106	102	153	242	439	0·72
Females													
1931–35	68	86	125	34	49	50	31	29	49	95	181	267	1·17
1936–40	64	74	94	30	49	48	29	27	45	85	173	279	1·02
1941–45	56	91	122	42	42	40	29	26	37	61	107	172	0·86
1946 ...	47	63	81	30	36	27	21	20	27	56	100	185	0·70
1947 ...	47	57	88	26	37	23	17	22	33	54	100	177	0·69
1948 ...	43	67	93	31	25	16	14	19	21	49	101	157	0·64
1949 ...	41	58	73	32	32	30	10	16	22	44	95	151	0·60
1949*...	41	59	73	32	32	30	10	16	22	44	95	151	0·61
1950*...	46	61	69	25	40	30	17	19	35	48	84	200	0·67

* According to the 6th Revision of the International Classification.

Table LXXXVI.—Motor vehicle accidents: Death rates per million living by sex and age, in standard regions and density summaries, 1950

	Males					Females				
	0–	15–	45–	65 and over	All ages	0–	15–	45–	65 and over	All ages
ENGLAND AND WALES ...	**91**	**163**	**124**	**303**	**151**	**53**	**23**	**41**	**124**	**46**
Conurbations (excluding Greater London)	50	70	63	188	74	30	11	26	68	25
Areas outside conurbations ...	94	183	130	291	161	55	23	40	98	44
Urban areas with populations of 100,000 and over ...	90	122	103	309	127	49	28	45	108	46
Urban areas with populations of 50,000 and under 100,000	100	143	118	342	146	66	23	45	76	44
Urban areas with populations under 50,000	97	168	104	276	147	53	15	29	111	39
Rural areas	92	255	183	278	205	57	29	47	87	47
Regions:										
Northern	123	148	119	340	153	67	31	37	92	47
East and West Ridings ...	93	152	113	341	146	46	17	30	88	35
North Western	117	153	133	388	161	62	20	48	115	47
North Midland	92	149	148	210	141	48	32	34	125	47
Midland	76	201	131	464	177	51	27	63	135	52
Eastern	69	180	139	255	153	48	26	57	94	48
Greater London	79	121	102	278	121	42	22	34	194	49
Remainder of South East ...	84	170	129	201	144	40	21	41	97	42
Southern	58	257	146	372	199	60	13	34	123	43
South Western	82	191	123	169	148	70	16	49	102	48
Wales	124	153	106	228	143	56	31	19	91	40

Table LXXXVII.—Deaths of pedestrians, pedal cyclists, motor cyclists, motor vehicle occupants and others in motor vehicle traffic accidents, motor vehicle non-traffic accidents and other road vehicle accidents, by sex, 1936–40, 1941–45, 1946–49 and 1946 to 1950

	1936–40 (average)		1941–45 (average)		1946–49 (average)		1946		1947		1948		1949		1950	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Pedestrians:																
Motor vehicle traffic accidents	2,148	1,010	2,073	898	1,295	706	1,404	714	1,339	712	1,210	720	1,214	674	1,140	726
Motor vehicle non-traffic accidents	}	}	}	}	}	}	}	}	}	}	}	}	13	2	32	6
Other road vehicle accidents…	194	79	166	70	79	47	82	42	77	50	89	45	67	51	76	51
Pedal cyclists:																
Motor vehicle traffic accidents	777	131	557	140	464	86	481	97	417	81	461	86	496	78	475	80
Motor vehicle non-traffic accidents	}	}	}	}	}	}	}	}	}	}	}	}	—	1	1	—
Other road vehicle accidents…	249	44	230	51	159	29	159	30	160	25	158	30	157	30	168	31
Motor cyclists:																
Motor vehicle traffic accidents	1,018	77	651	27	659	48	681	46	696	62	520	26	733	56	979	7
Motor vehicle non-traffic accidents	}	}	}	}	}	}	}	}	}	}	}	}	6	—	7	—
Motor vehicle occupants and others:																
Motor vehicle traffic accidents	631	191	762	167	549	155	592	178	583	181	474	141	498	118	505	150
Motor vehicle non-traffic accidents	}	}	}	}	}	}	}	}	}	}	}	}	50	1	48	2
Other road vehicle accidents…	36	3	47	11	26	6	24	8	28	4	20	5	32	7	50	13

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Table LXXXVIII.—Average road deaths for 1937–38, 1947–48, 1949–50 according to the type of vehicle involved

Categorization A (1937–38 and 1947–48)

Type of vehicle involved	Average 1937–38 M.	F.	Average 1947–48 M.	F.
Pedestrians by:				
Motor cycle ...	123	87	75	51
Motor goods vehicle	530	274	505	286
Motor bus, trolley bus	176	103	233	135
Motor car, coach ...	805	492	442	240
Other motor vehicle ...	18	6	19	4
Pedal cycle ...	148	} 77	50	32
Other non-motor vehicle			34	16
Pedal cyclist by:				
Motor cycle ...	37	5	13	3
Motor goods vehicle	259	42	189	36
Motor bus, trolley bus	2	—	70	10
Motor car, coach ...	424	65	165	33
Other motor vehicle ...	—	—	2	1
Pedal cycle alone ...			141	24
Other pedal cyle ...	243	} 44	13	2
Other non-motor vehicle			5	2
Motor cyclist by:				
Motor cycle alone ...	382	} 43	231	18
Other motor cycle ...			21	2
Motor goods vehicle	204	7	166	7
Motor bus, trolley bus	51	3	36	3
Motor car, coach ...	311	32	133	12
Other motor vehicle ...	—	—	6	—
Pedal cycle ...	23	2	12	1
Other non-motor vehicle ...	1	—	3	1

Categorization B (1949 and 1950)

Type of vehicle involved	1949 M.	F.	1950 M.	F.	Average 1949–50 M.	F.
Pedestrians by:						
Goods transport vehicle ...	504	265	445	262	474	263
Motor bus, trolley bus ...	182	91	146	87	164	89
Other passenger motor vehicle (including motor cycle)	536	319	563	374	548	346
Other motor vehicle ...	5	1	18	9	12	5
Street car	11	13	18	8	15	11
Pedal cycle	43	34	47	39	45	37
Other non-motor road vehicle	13	4	11	4	12	4
Pedal cyclist by:						
Goods transport vehicle ...	198	43	214	43	206	43
Motor bus, trolley bus ...	72	7	47	7	60	7
Other passenger motor vehicle (including motor cycle)	224	28	209	30	216	29
Other motor vehicle	2	—	6	—	4	—
Pedal cycle and other non-motor vehicle	152	30	168	31	160	31
Motor cyclist by:						
Motor cycle alone ...	148	12	164	14	156	13
Goods transport vehicle ...	220	12	291	17	255	14
Motor bus, trolley bus ...	36	2	66	7	51	5
Other passenger motor vehicle	201	18	285	32	243	25
Other motor vehicle	4	—	5	—	5	—
Non-motor vehicle or object..	130	12	175	9	153	11

Table LXXXIX.—Deaths caused by road accidents involving various types of vehicles, 1940 to 1950

1938 Int. List No.	Type of accident		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950*
170c (part)	*Motor vehicle accident causing death of pedestrian by:*												
	Motor goods vehicle	M.	955	1,100	950	792	956	703	517	507	503	496	414
		F.	397	500	439	386	481	355	251	265	307	267	258
	Motor bus, trolley bus	M.	677	728	587	466	437	287	248	239	228	190	146
		F.	193	223	225	187	194	157	150	136	134	90	87
	Motor car, coach, motor cycle	M.	1,285	1,213	622	425	462	446	619	573	460	535	562
		F.	408	426	212	170	222	249	304	309	273	317	372
	Other road motor vehicle (including collision unspecified)	M.	46	57	31	35	50	18	20	20	19	6	18
		F.	15	8	18	13	14	12	9	2	6	6	9
170c (part)	*Motor vehicle non-collision accident causing death of occupant or rider of:*												
	Motor cycle	M.	283	316	244	155	129	145	287	253	210	261	164
		F.	19	15	14	—	4	8	19	24	12	24	14
	Motor goods vehicle	M.	240	338	308	282	289	224	187	131	124	140	95
		F.	8	16	24	13	15	23	11	12	11	10	7
	Motor bus, trolley bus	M.	60	85	67	80	43	56	43	38	43	43	46
		F.	26	57	58	40	47	59	32	38	35	23	23
	Motor car, coach	M.	135	132	69	65	49	101	110	133	60	82	52
		F.	54	49	27	16	14	37	55	57	25	23	19
	Other road motor vehicles	M.	4	12	5	14	12	8	9	7	8	4	—
		F.	1	—	—	3	7	3	2	2	5	—	—
170a	Collision between motor vehicle and train	M.	4	22	6	21	11	22	9	19	19	7	13
		F.	1	2	—	4	1	1	—	2	2	—	2
170b, 170c (part)	*Other collision involving a motor vehicle causing death of :*												
	Pedal cyclist by :—												
	Motor goods vehicle	M.	340	326	280	238	324	229	200	187	192	197	214
		F.	70	87	68	75	105	56	42	30	43	43	43
	Motor bus, trolley bus	M.	95	104	86	83	69	69	56	61	78	72	47
		F.	14	18	20	11	19	17	12	9	11	6	7
	Motor car, coach, motor cycle	M.	309	295	195	120	149	167	220	167	189	217	208
		F.	61	64	41	35	43	31	42	41	31	29	30
	Other road motor vehicle	M.	8	9	6	7	20	10	5	2	2	4	6
		F.	—	1	1	1	4	3	1	1	1	—	—
	Motor cyclist	M.	812	886	514	273	307	286	391	443	309	484	815
		F.	23	37	19	13	8	17	27	38	13	33	65
	Occupant of other road vehicle	M.	389	486	271	201	258	249	216	242	209	219	295
		F.	105	108	74	27	44	65	78	70	64	56	97
170c (part)	*Ill-defined motor vehicle accident causing death of:*												
	Other or unspecified person	M.	—	—	—	—	9	17	21	13	12	8	4
		F.	—	—	—	—	—	1	—	—	—	—	2
	Total motor road vehicle fatalities	M.	5,642	6,109	4,241	3,257	3,574	3,037	3,158	3,035	2,665	2,965	3,099
		F.	1,395	1,611	1,240	994	1,222	1,094	1,035	1,036	973	927	1,035

Table LXXXIX.—*continued*.

1938 Int. List No.	Type of accident		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950*
171	*Road transport accidents involving only non-motor vehicles, causing death of:—*													
	Pedestrian by:													
	Tramcar	M.	120	94	67	70	51	33	19	17	26	9	18
		F.	28	29	26	32	24	21	22	12	11	13	8
	Pedal cycle ...	M.	109	79	67	68	57	34	41	45	54	45	47
		F.	55	46	28	39	26	30	14	33	31	36	39
	Other non-motor vehicle ...	M.	27	48	45	40	48	28	22	15	9	13	11
		F.	2	8	11	11	7	13	6	5	3	6	4
	Pedal cyclist by:—													
	No other vehicle ...	M.	245	222	222	242	208	168	141	143	140	149	⎫
		F.	42	33	53	63	37	39	27	24	24	27	
	Tramcar ...	M.	2	—	—	2	1	—	2	3	—	2	⎬ 168
		F.	1	—	—	—	—	1	1	—	1	—	31
	Other non-motor vehicle ...	M.	15	15	21	15	21	14	16	14	18	20	
		F.	3	3	4	7	8	8	2	1	5	1	⎭
	Occupant of tramcar ...	M.	15	18	14	13	7	9	10	7	6	6	3
		F.	5	9	3	13	7	7	5	3	3	3	—
	Occupant of other non-motor vehicle ...	M.	31	30	41	37	35	33	14	21	14	12	47
		F.	2	3	4	3	5	3	3	1	2	2	13
	Total non-motor road vehicle fatalities ...	**M.**	**504**	**506**	**477**	**487**	**428**	**319**	**265**	**265**	**267**	**256**	**294**
		F.	**138**	**131**	**129**	**168**	**114**	**122**	**80**	**79**	**80**	**88**	**95**
170 and 171	**Total pedestrians ...**	**M.**	3,219	3,319	2,369	1,896	2,061	1,549	1,486	1,416	1,299	1,294	1,216
		F.	1,098	1,241	959	838	968	837	756	762	765	735	777
	Total pedal cyclists ...	**M.**	1,014	971	810	707	792	657	640	577	619	661	643
		F.	191	206	187	192	216	155	127	106	116	106	111
	Total motor cyclists ...	**M.**	1,095	1,203	758	428	437	431	681	696	520	745	979
		F.	42	52	33	13	12	25	46	62	26	57	79
	Total occupants of motor vehicles	**M.**	818	1,052	717	658	651	647	564	558	459	488	⎫
		F.	193	227	180	102	125	188	176	180	140	112	
	Total occupants of non-motor vehicles ...	**M.**	60	70	64	55	52	54	30	40	22	23	⎬ 555
		F.	9	16	10	17	15	10	10	5	6	5	163
	Total other or unspecified persons	**M.**	—	—	—	—	9	18	22	13	13	10	
		F.	—	—	—	—	—	1	—	—	—	—	⎭

* For 1950 deaths from motor vehicle accidents occurring elsewhere than on a public highway are excluded from this Table. For that year the deaths shown have been estimated m available material based on the 6th Revision of the International Classification.

Table XC.—Proportion of deaths per 1,000 violent deaths according to nature of injury, 1950

		Fracture of skull	Fracture of spine or trunk	Fracture of limb	Head injury other than fracture	Internal injury	Laceration and open wounds	Poisoning	Others	Total
Motor vehicle accidents ...	M.	606	82	48	115	105	5	0	39	1,000
	F.	586	81	67	124	93	6	—	43	1,000
Other transport accidents ...	M.	401	53	36	82	96	22	6	304	1,000
	F.	534	34	96	116	48	21	—	151	1,000
Falls	M.	313	115	382	110	33	3	—	44	1,000
	F.	81	50	741	78	9	4	—	37	1,000
Suicide or self-inflicted injury ...	M.	27	14	1	47	11	95	465	340	1,000
	F.	15	11	2	8	4	32	689	239	1,000
Others	M.	101	52	13	44	70	26	125	569	1,000
	F.	25	6	11	17	10	15	260	656	1,000

Table XCI.—Accidental falls: Death rates per million living by sex and age, and Comparative Mortality Indices by sex, 1901–45 and 1946 to 1950

	All ages	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75 and over	C.M.I. (1938 =1.00)
Males													
1901–10 ...	84	59	31	25	23	24	39	69	119	209	420	1,253	1·06
1911–20 ...	107	47	30	30	39	36	56	93	155	254	454	1,373	1·29
1921–30 ...	85	30	20	18	31	31	37	56	93	161	352	1,306	0·92
1931–35 ...	93	33	17	18	31	33	37	47	79	146	338	1,609	0·92
1936–40 ...	120	35	27	24	34	40	51	58	95	177	414	1,910	1·05
1941–45 ...	109	35	34	26	40	30	41	58	87	157	337	1,448	0·93
1946 ...	86	31	23	21	25	26	30	43	57	107	245	1,203	0·73
1947 ...	97	34	26	26	33	42	36	50	68	108	254	1,352	0·80
1948 ...	80	28	25	22	22	27	37	41	49	85	211	1,122	0·66
1949 ...	78	19	20	18	28	31	33	38	57	68	185	1,162	0·63
1949* ...	79	27	22	18	27	28	32	35	55	71	191	1,174	0·66
1950* ...	74	15	14	18	19	25	29	34	50	71	183	1,139	0·61
Females													
1901–10 ...	68	40	12	6	4	4	10	26	64	132	389	1,657	0·88
1911–20 ...	69	29	11	6	5	5	8	20	50	108	356	1,752	0·83
1921–30 ...	73	18	7	4	4	4	5	10	31	85	318	1,845	0·75
1931–35 ...	100	21	7	5	3	3	6	8	30	92	388	2,283	0·90
1936–40 ...	136	24	12	6	4	5	6	12	34	123	476	2,714	1·11
1941–45 ...	118	24	11	8	5	6	6	11	26	81	346	2,135	0·85
1946 ...	110	23	6	4	3	5	6	6	11	59	260	2,037	0·76
1947 ...	111	14	8	7	9	4	4	5	15	58	286	1,947	0·75
1948 ...	100	13	8	4	4	4	3	4	18	51	231	1,726	0·66
1949 ...	105	11	8	6	3	2	2	4	13	50	232	1,840	0·69
1949* ...	105	13	12	6	4	1	2	5	15	51	230	1,822	0·69
1950* ...	113	11	5	2	2	1	3	5	14	45	230	1,994	0·73

* According to the 6th Revision of the International Classification.

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Table XCII.—Accidental burns: Deaths by sex according to place of occurrence, 1950

						Place of occurrence						
		Total	Home	Farm	Mine and quarry	Industrial place and premises	Place for recreation and sport	Street and highway	Public building	Resident institution	Other specified places	Place not specified
E916—Accident caused by fire or explosion of combustible material	M.	**180**	**128**	**4**	**4**	**30**	—	**1**	**4**	**7**	**2**	—
	F.	**366**	**340**	—	—	**5**	—	**1**	**4**	**8**	**4**	**4**
Burns by clothing ...	M.	47	40	—	—	1	—	1	2	2	1	—
	F.	224	212	—	—	—	—	—	2	7	1	2
from domestic fire ...	M.	15	15	—	—	—	—	—	—	—	—	—
	F.	81	80	—	—	—	—	—	—	1	—	—
,, gas fire ...	M.	4	3	—	—	—	—	—	1	—	—	—
	F.	19	19	—	—	—	—	—	—	—	—	—
,, electric fire ...	M.	9	7	—	—	—	—	—	1	1	—	—
	F.	43	39	—	—	—	—	—	1	3	—	—
other specified ...	M.	17	13	—	—	1	—	1	—	1	1	—
	F.	56	53	—	—	—	—	—	—	3	—	—
not specified ...	M.	2	2	—	—	—	—	—	—	—	—	—
	F.	25	21	—	—	—	—	—	1	—	1	2
Burns by falling into fire ...	M.	30	27	1	1	1	—	—	—	—	—	—
	F.	42	42	—	—	—	—	—	—	—	—	—
,, other specified means	M.	98	56	3	3	28	—	—	2	5	1	—
	F.	97	83	—	—	5	—	1	2	1	3	2
Burns, means not specified...	M.	5	5	—	—	—	—	—	—	—	—	—
	F.	3	3	—	—	—	—	—	—	—	—	—

Table XCIII.—Accidental falls: Number of deaths showing percentage at ages 65 and over at work and at home, 1950

Specification of fall	Total				At work		At home	
	Numbers		Proportion per 1,000					
	M.	F.	M.	F.	M.	F.	M.	F.
Fall on stairs	260	458	165	180	17	3	200	430
Per cent aged 65 and over ...	*72*	*85*			*41*	*67*	*78*	*85*
Fall from ladders	83	6	53	2	69	1	30	5
Per cent aged 65 and over ...	*27*	*—*			*17*	*—*	*33*	*—*
Other falls from one level to another	555	365	352	143	286	5	154	263
Per cent aged 65 and over ...	*31*	*83*			*12*	*40*	*60*	*85*
Falls on same level	448	1,115	284	437	21	7	214	804
Per cent aged 65 and over ...	*83*	*95*			*29*	*43*	*95*	*98*
Unspecified falls	231	607	146	238	3	2	110	353
Per cent aged 65 and over ...	*82*	*95*			*33*	*—*	*95*	*96*
Total	**1,577**	**2,551**	**1,000**	**1,000**	**396**	**18**	**708**	**1,855**
Per cent aged 65 and over ...	*60*	*91*			*15*	*39*	*80*	*92*

Table XCIV.—Suicide: Mean annual death rates by sex and age per million living in standard regions (average 1947–50)

	Males				Females			
	15–	45–	65 and over	15 and over	15–	45–	65 and over	15 and over
England and Wales	**88**	**266**	**427**	**184**	**49**	**147**	**148**	**94**
Regions:								
Northern	81	267	352	169	43	114	110	74
East and West Ridings...	78	264	441	179	45	142	160	93
North Western	93	265	447	190	44	155	172	99
North Midland	86	289	466	194	53	141	161	96
Midland	86	282	491	187	45	164	155	95
Eastern	87	256	402	181	45	143	142	91
London & South Eastern	92	256	431	182	58	151	157	102
Southern	93	282	441	197	52	162	129	99
South Western	100	278	384	195	39	147	123	88
Wales	76	233	369	162	42	117	96	74
Coefficient of variation ...	*8·15*	*5·88*	*9·95*	*5·92*	*11·89*	*11·11*	*16·88*	*10·31*

Table XCV.—Suicide: Death rates by sex and age in standard regions expressed as percentages of those for England and Wales (average 1947–50)

	Males				Females			
	15–	45–	65 and over	All ages over 15	15–	45–	65 and over	All ages over 15
England and Wales...	100	100	100	100	100	100	100	100
Regions:								
Northern	92	100	82	92	88	78	74	79
East and West Ridings... ...	89	99	103	97	92	97	108	99
North Western ...	106	100	105	103	90	105	116	105
North Midland ...	98	109	109	105	108	96	109	102
Midland	98	106	115	102	92	112	105	101
Eastern	99	96	94	98	92	97	96	97
London and South Eastern... ...	105	96	101	99	118	103	106	109
Southern	106	106	103	107	106	110	87	105
South Western ...	114	105	90	106	80	100	83	94
Wales	86	88	86	88	86	80	65	79

Table XCVI.—Suicide: Crude death rates per million living by sex and means used, 1940 to 1950

		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Analgesics and soporifics	M.	2	3	2	2	2	3	3	5	7	7	8
	F.	4	3	3	3	3	4	5	6	10	9	11
Other solids and liquids	M.	10	7	6	7	7	7	7	6	6	6	5
	F.	9	7	6	5	5	5	5	5	3	4	4
Domestic gases	M.	52	42	38	41	46	45	46	47	54	53	49
	F.	35	28	29	29	28	31	36	39	40	38	33
Hanging and strangulation	M.	30	24	24	27	24	29	32	30	29	31	27
	F.	7	6	5	6	5	6	8	7	6	6	6
Submersion (drowning)	M.	20	17	16	18	19	18	18	15	17	17	16
	F.	11	11	11	13	11	12	12	11	11	10	10
Firearms and explosives	M.	14	15	14	14	12	11	11	12	10	11	9
	F.	1	1	1	1	1	1	0	1	1	0	0
Cutting and piercing instruments... ...	M.	17	16	13	15	15	14	15	11	9	11	9
	F.	3	2	2	3	2	2	3	2	2	2	2
Jumping from high places	M.	6	4	5	4	4	3	4	4	5	4	4
	F.	3	2	3	2	2	3	3	3	3	3	2
Other and unspecified means	M.	6	6	6	5	6	5	7	7	7	6	8
	F.	2	3	2	2	2	2	3	2	3	2	2
Total suicides	M.	159	135	125	134	135	136	144	137	145	147	136
	F.	75	62	62	63	58	66	75	76	79	75	70

Table XCVII.—Suicide: Crude death rates per million living in metropolitan and county boroughs, and ranking order, 1950

County or Metropolitan Borough	Death rate	Ranking order	County or Metropolitan Borough	Death rate	Ranking order
Region I. Northern:			**Region V. London and South Eastern**—*cont.*		
Carlisle	59	102	St. Marylebone	166	13
Darlington	105	56	St. Pancras	120	33
Gateshead	95	74	Shoreditch	67	100
Middlesbrough	96	72	Southwark	124	30
Newcastle-on-Tyne	136	22	Stepney	100	69
South Shields	119	34	Stoke Newington	103	63
Sunderland	112	48	Wandsworth	156	17
Tynemouth	121	32	West Ham	116	40
West Hartlepool	110	52	Westminster	257	5
Region II. East and West Ridings:			Woolwich	101	68
Barnsley	66	101	**Region VI. Southern:**		
Bradford	116	40	Bournemouth	193	7
Dewsbury	113	47	Oxford	92	76
Doncaster	86	82	Portsmouth	104	59
Halifax	162	14	Reading	112	48
Huddersfield	193	7	Southampton	105	56
Kingston-upon-Hull	159	15	**Region VII. South Western:**		
Leeds	100	69	Bath	104	59
Rotherham	84	86	Bristol	79	92
Sheffield	85	84	Exeter	104	59
Wakefield	33	111	Gloucester	103	63
York	130	27	Plymouth	53	106
Region III. North Midland:			**Region VIII. Wales:**		
Derby	119	34	Cardiff	45	109
Grimsby	107	53	Merthyr Tydfil	83	88
Leicester	104	59	Newport	103	63
Lincoln	86	82	Swansea	111	50
Northampton	85	84	**Region IX. Midland:**		
Nottingham	114	44	Birmingham	115	43
Region IV. Eastern:			Burton-on-Trent	184	11
Great Yarmouth	117	39	Coventry	125	28
Ipswich	106	55	Dudley	190	9
Norwich	125	28	Smethwick	90	78
Southend	79	92	Stoke-on-Trent	116	40
Region V. London and South Eastern:			Walsall	114	44
			West Bromwich	80	91
Battersea	102	67	Wolverhampton	68	99
Bermondsey	50	107	Worcester	98	71
Bethnal Green	136	22	**Region X. North Western:**		
Brighton	184	11			
Camberwell	89	80	Barrow	118	36
Canterbury	111	50	Birkenhead	70	97
Chelsea	152	18	Blackburn	135	24
Croydon	107	53	Blackpool	187	10
Deptford	118	36	Bolton	71	96
Eastbourne	258	4	Bootle	114	44
East Ham	90	78	Burnley	259	3
Finsbury	84	86	Bury	118	36
Fulham	105	56	Chester	103	63
Greenwich	56	104	Liverpool	70	97
Hackney	134	25	Manchester	95	74
Hammersmith	50	107	Oldham	159	15
Hampstead	287	1	Preston	75	95
Hastings	122	31	Rochdale	134	25
Holborn	270	2	St. Helens	44	110
Islington	92	76	Salford	96	72
Kensington	152	18	Southport	152	18
Lambeth	82	89	Stockport	56	104
Lewisham	79	92	Wallasey	137	21
Paddington	199	6	Warrington	88	81
Poplar	81	90	Wigan	59	102

Table XCVIII.—Suicide: Proportions per 1,000 deaths according to external agent, by sex and age (average 1947-50)

Agent	Males					Females				
	15–	35–	55–	75 & over	All ages	15–	35–	55–	75 & over	All ages
Coal gas poisoning	310	373	344	371	353	489	484	519	521	500
Other poisoning	115	117	80	66	97	214	192	157	167	178
Hanging or strangulation ...	245	197	213	197	210	78	93	79	82	85
Drowning	66	94	138	140	113	93	135	162	113	140
Firearms or explosives ...	125	89	58	53	78	15	9	3	—	7
Cutting and piercing instruments	26	50	97	104	71	7	23	27	33	24
Jumping down	29	27	29	33	28	43	30	34	77	37
Other agents	84	53	41	36	50	61	34	19	7	29
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

MEDICAL CERTIFICATION OF CAUSE OF DEATH

The form of medical certificate of cause of death prescribed by the World Health Organization Nomenclature Regulations 1948 was introduced in England and Wales from the beginning of 1950 after consultation with the Registrar General's Medical Advisory Committee and with the British Medical Association. The opportunity was taken to issue to medical practitioners with the new form of certificate an extract from pages 81–83 of the Text, Vol. 1, Medical, for 1940–45 which discussed some of the defects then common in certification of causes of death by medical practitioners.

The new form of certificate follows the same principle as that which was already in use in England and Wales, but there were minor changes to remove certain ambiguities in the form of words used, and a panel providing for a statement of the approximate interval between onset of each morbid condition and death was introduced. The additional information provided in this panel does not appear in the entry in the death register and is used for statistical purposes only.

With a view to assisting the World Health Organization in considering difficulties which might arise in the use of the new certificate, particularly in those countries where a radical change in practice was involved, the W.H.O. Centre for Problems arising in the use of the International Statistical Classification carried out, with the co-operation of the General Register Office, a sample study of the way in which the international form of certificate was being used in England and Wales in 1950. The results of this study have not been published by the World Health Organization, but, with their agreement, certain extracts from the report prepared by the W.H.O. Centre are presented here. These extracts cover the following points:—

> Number of causes entered on the certificate.
>
> Mode of entry of multiple causes and duration of illness.
>
> Secondary causes jointly certified with certain diseases.

The method used was to select ten representative areas of the country, including two Metropolitan Boroughs in London (Bermondsey and St. Marylebone), three large towns (Birmingham, Bristol and Liverpool), small towns in three counties of different character (Nottingham, Northumberland and Southampton) and rural districts in two areas (Devonshire and North Wales). From each of these was taken a series of 200 death certificates, consecutive in order of date of registration, in the month of February, 1950 and another series in May, 1950, giving a total of 4,000 in all. Certificates rendered by coroners for violent deaths, for which a special form is used, were excluded, so the sample represents 4,000 certificates rendered by doctors on the international form and relating to deaths from natural causes. In the resulting analysis distinction was made of deaths occurring in a hospital and occurring elsewhere, deaths of males and females, and by seven age groups.

Number of causes entered on the certificate

Table XCIX (page 205) shows the frequency of entry of a single cause of death and of two, three, four and five or more conditions together constituting the

cause of death.   Deaths which occurred in hospitals, of which there were 1,154 in the sample of 4,000, are analysed separately from the remainder.   The proportion of hospital deaths in the total for a particular area depends to a large extent upon whether hospitals serving that area were situated within the area boundaries, and no conclusions should be drawn from those proportions; the purpose of separating them was to discover whether certificates written in hospitals tend to have more conditions entered upon them, and to have other special characteristics.

Deaths in hospital tend to be selective as regards age distribution, and since the frequency of entry of multiple conditions on death certificates is likely to vary with age, it is necessary to take that into account before comparing hospital deaths with those elsewhere.   Table C (page 206) shows the distributions according to number of conditions entered on certificates at six different groups of ages in hospitals, in London and the large towns excluding hospitals, and in the small towns and rural areas, excluding hospitals.   In each of these three locality groups entry of a single cause was much more frequent at ages under 35 than at ages over 55; at ages under 55 it occurred more often out of hospitals than within hospitals; and at ages over 65 it was most frequent in small towns and rural areas and least frequent in London and large towns outside hospitals.

The age distributions in the sample of 4,000 deaths compare as follows:—

	0–	1–	35–	55–	65–	75 & over	All ages
Hospitals	6·3	7·3	16·6	18·5	26·9	24·4	100·0
Elsewhere							
London and large towns...	1·0	2·6	8·6	14·9	31·3	41·6	100·0
Small towns and rural ...	2·8	3·0	8·7	13·4	29·0	43·1	100·0
All combined	3·3	4·1	11·0	15·3	29·0	37·3	100·0

The hospital age distribution differs significantly from the others, and in order to make a valid comparison of the frequencies of multiple entry at all ages, the rates have been standardized by applying the percentages in Table C to a common age distribution, namely that of the whole sample.

No. of conditions entered on certificates	Standardized frequencies of multiple entry		
	Hospital deaths	Deaths not in hospital	
		Large towns	Elsewhere
1	24·4	25·2	32·5
2	41·7	40·1	38·4
3	25·5	26·8	22·8
4	6·5	6·4	5·8
5 or more	1·9	1·5	0·5
Total	100·0	100·0	100·0

From this it appears that in hospitals, and also in medical practice in large towns, about 25 per cent of death certificates have a single cause entered, 41 per cent have two conditions stated, 26 per cent have three, and 8 per cent

have more than three; but at ages under 35 the proportion with a single entry is considerably higher than 25 per cent, being 40 or 50 per cent. In medical practice in small towns and rural areas about 33 per cent have a single cause entered at all ages, whilst about 38 per cent have two conditions entered, 23 per cent have three and 6 per cent have more than three; but at early ages of death upwards of 60 per cent have a single cause stated.

Comparing the distributions in Table XCIX for the sexes, no statistical significance attaches to the small differences, either for hospital or other deaths, shown by the crude rates below.

No. of conditions entered	Hospital deaths		Other deaths	
	M.	F.	M.	F.
1	25·1	25·8	29·8	26·8
2	40·5	42·8	37·1	42·7
3	26·0	24·1	25·2	24·3
4	6·0	6·3	6·8	5·4
5 or more	2·4	1·0	1·1	0·8
Total	100·0	100·0	100·0	100·0

Mode of entry of multiple causes and duration of illness

Table CI (page 207) shows that when two conditions were entered on a hospital death certificate, both were written on the same line of Part I in 5 per cent, and one was written in Part II of the certificate in 23 per cent. In medical practice in large towns the proportions were 3 and 20 per cent respectively, and elsewhere 1½ and 14 per cent.

When three conditions were entered, one or more were written in Part II as subsidiary causes for 33 per cent of hospital deaths, 40 per cent of other deaths in large towns and 37 per cent of deaths elsewhere; and when four conditions were entered Part II was used for 87, 81 and 63 per cent of the three groups of deaths.

The International Certificate contains a space for specification of the interval between date of reputed onset of each disease entered and the date of death. In England and Wales, as in most other countries, this question was a new one, and 1950 was the first year of its inclusion on the certificate. It was not to be expected that certifiers would immediately make full use of the space provided, and Table CII (page 208) shows the extent to which they did so. The primary purpose of the question was not to obtain statistics of durations of disease, which in many instances would not be known or could only be estimated roughly. Its main purpose was to facilitate the selection of the underlying cause when two or more diseases are mentioned, and to enable the coder to detect errors in the order of entry of those diseases in Part I of the certificate. The table has been arranged, therefore, to show the frequency of statement of duration for diseases entered in different parts of the certificate, alone and with other conditions.

When a *single cause* of death is entered, it is usually not important, for purposes of assigning the correct code, whether the duration is known or not; but for a few diseases where separate categories are provided for late effects or chronic disease as distinct from the acute condition the duration may assist

coding. Table CII shows that duration was stated on 752 out of 1,100 certificates having a single disease stated; and the percentages with no duration stated, according to place of death, sex and age compared as follows.

	Males	Females	Under 65	65 and over	All deaths
Hospital deaths...	39	30	31	40	35
Other deaths ...	29	32	25	34	30
All deaths ...	32	32	27	35	32

Duration was stated more often for deaths at ages under 65 than at later ages. In hospitals, where records would usually be taken from the patient during life, it was stated more often for females than males; but elsewhere this did not apply.

When *multiple causes* of death were entered, the corresponding percentages with no duration stated, derived from the 2,900 deaths, show a similar relation with age, but no appreciable sex difference.

	Males	Females	Under 65	65 and over	All deaths
Hospital deaths ...	34	35	30	38	34
Other deaths ...	30	27	27	29	29
All deaths ...	31	29	28	31	30

It appears from Table CII that on 45 per cent of the multiple-cause certificates a duration was stated for one disease only, and on another 3 per cent it was stated for one disease in Part I together with one or more in Part II. There remained 22 per cent where durations were stated for at least two conditions entered in Part I of the certificate, and this is the group where statement of durations would assist the coder to detect an incorrect arrangement of the diseases from which the underlying cause has usually to be deduced according to Rule B (i.e., the last stated condition in Part I).

Since the " underlying cause " could not have started later in time than the onset of a condition said to have arisen as a consequence of it, the duration of the last-stated cause in Part I should not be less than that of any condition entered above it.   If it is less, an error in the order of entry of causes is indicated, and this may or may not affect the code, since some categories of the International Classification take a combination of two causes regardless of their relative positions on the certificate.

The examples which follow illustrate four possible situations arising from erroneous statements:—

(1) Ia. Chronic bronchitis   ..   .. 8 years.
    b. Myocardial degeneration   .. 2 years.

(2) Ia. Hypertension   ..   ..   .. 5 years.
    b. Cirrhosis of kidney   ..   .. 2 years.

(3) Ia. Carcinoma of colon   ..   .. 1 year.
    b. Intestinal obstruction ..   .. 1 week.

(4) Ia. Whooping cough   ..   .. 1 month.
    b. Pneumonia   ..   .. 1 week.

In the first two examples the durations indicate an error in the order of entry of the causes, which would not have been apparent if durations had not been given, either sequence being possible. In the first the code would be changed because of this to chronic bronchitis as underlying cause; but in the second the code is 446 in either case since that category includes " any condition in 594 with hypertension " regardless of the order of statement. In the last two examples the sequences would be seen to be impossible even if no durations were stated, and the durations merely confirm that conclusion. In example (3) the code would be changed to carcinoma of colon as underlying cause; but in example (4) the code is not affected since category 056·1 comprises "whooping cough with pneumonia " regardless of the order of statement. Only in example (1), therefore, would the statement of durations cause a change in code number.

From Table CII it is seen that amongst 2,900 certificates with multiple causes, statement of two durations in Part I occurred on 400; in 360 of these the duration of the condition said to be the underlying cause was the longer of the two, and in 33 the durations were equal. In addition there were 234 certificates with statement of 3 or more durations, which agreed with the order of arrangement of the causes in 223. There remained 18 certificates on which the durations did not agree with the order of entry, but for 7 of these the code was not affected by the error. In 11 cases out of 2,900 with multiple causes (0·4 per cent), that is to say in 0·3 per cent of the total 4,000 certificates, statement of durations led to an amendment of the code number.

It should be noted, however, that there were 2,558 certificates in all with entry of two or more causes in Part I (Table CI), and that had durations for all of these conditions been stated the number of amendments to code numbers would have exceeded 11. It may be estimated that if durations had been fully stated on the 2,900 certificates, the number of amendments resulting might have been four times as great; and this leads to the general conclusion that complete statement of durations when more than one cause is entered on a certificate would have resulted in an amendment of coding for about 1½ per cent of such deaths, or 1 per cent of all deaths. Although the omission of durations must in many instances have been due to inability of the certifier to ascertain them, it would seem to be worth while to endeavour to improve the completeness of statement of durations when more than one cause is entered in Part I of the certificate.

Secondary causes jointly certified with certain diseases

Special study was made of the descriptions used and frequency of mention of separate associated conditions for certain diseases of peculiar interest when the latter were classified as underlying cause of death, and the results are summarized below. A more comprehensive study of secondary causes in several countries is in progress, and the present analysis, based as it is upon a representative sample of 4,000 death certificates in the year 1950 in England and Wales, aims only at giving a few indications which may be of interest in this exploration of the use being made of the international form of certificate.

In addition to the associated diseases enumerated below there were many others with small frequencies under each heading.

241. *Asthma*

14 out of 24 had mention of associated heart disease; and 8 were described as " bronchial " asthma.

331.   *Cerebral hæmorrhage*

45 out of 229 had no associated condition stated. Hypertension was mentioned for 65, arteriosclerosis for 70, and both together for 24, a total of 159.

332.   *Cerebral embolism and thrombosis*

231 out of 241 were described as thrombosis, 7 as embolism and 3 as softening. 68 had no associated condition stated.

Hypertension was mentioned for 28, arteriosclerosis for 85, and both together for 13, a total of 126.

The frequency of mention of associated arteriosclerosis was 40 per cent for cerebral thrombosis, 43 per cent for cerebral embolism and 41 per cent for cerebral hæmorrhage, despite the supposed differences in ætiology of these conditions; but hypertension was not mentioned so often with cerebral thrombosis (16 per cent) as for cerebral hæmorrhage (39 per cent).

334.   *Other and ill-defined vascular lesions affecting central nervous system*

Out of 21 assigned to this group, 10 were described as cerebral arteriosclerosis, 5 as cerebral degeneration with arteriosclerosis, 1 as cerebral apoplexy with arteriosclerosis, 1 as cerebral vascular accident with arterioslcerosis, 1 as senile cerebro-vascular degeneration, and 3 as apoplexy or stroke.

410.   *Diseases of mitral valve*

Out of 72 thus classified, 48 were described as mitral stenosis, 9 as mitral incompetence or regurgitation, 10 as mitral (valve) disease and 5 as rheumatic mitral disease. In addition to the 5 described as " rheumatic ", there were 7 cases in which rheumatic fever was mentioned, 7 with rheumatic aortic valve disease and 6 with other heart disease specified as rheumatic, giving a total of 25 with stated rheumatic origin out of the 72 in this category.

420. 0.   *Arteriosclerotic heart disease*

Only 3 deaths were so described, compared with 370 with specific mention of coronary disease and classified to 420. 1; and for one of them both descriptions were mentioned.

420. 1.   *Heart disease specified as including coronary arteries*

The 379 deaths assigned to this category had the following descriptions of the underlying cause:—

Coronary thrombosis	291
Coronary artery thrombosis	21
Coronary (artery) atheroma	17
Coronary arteriosclerosis (or sclerosis) ..	16
Coronary (artery) occlusion (or obstruction)..	16
Cardiac infarct	6
Coronary embolism	5
Coronary artery disease	4
Myocardial infarction	3

Out of the 312 described as *thrombosis*, 90 had no associated condition stated and 6 had mention of angina pectoris without any other condition.

Hypertension was mentioned for 29, arteriosclerosis for 97 and both conditions for 18, giving 15 per cent with mention of hypertension and 37 per cent with arteriosclerosis. Myocardial degeneration was stated for 41, diabetes for 8.

Out of the 33 described as *atheroma or arteriosclerosis*, 12 had mention of myocardial disease, 2 of hypertension, and 3 of diabetes, and out of the 30 described as *occlusion, embolism or infarction* 5 had mention of myocardial disease, 9 of hypertension, 11 of arteriosclerosis and none of diabetes.

422. 1. *Other myocardial degeneration with arteriosclerosis*

The 218 deaths assigned here were described as follows:—

Myocardial degeneration with arteriosclerosis ..	102
Myocarditis (chronic, senile or unqualified) with arteriosclerosis	49
Myocardial degeneration (or fibrosis) with atheroma or vascular degeneration	8
Cardiovascular degeneration	52
Cardiovascular disease or sclerosis	7

No other condition was stated for 90; senility was the only associated condition for 30; cerebral vascular lesions were mentioned for 16, and bronchitis for 22.

422. 2. *Other myocardial degeneration*

The 425 deaths assigned to this category had the following descriptions of the myocardial condition :—

Myocardial degeneration	269
Senile myocardial degeneration	18
Chronic myocardial degeneration	10
Myodegeneration or muscular degeneration of heart	5
Myocardial fibrosis	2
Myocarditis (unqualified)	40
Senile myocarditis	21
Chronic myocarditis	41
Myocardial disease, ischæmic heart disease or senile cardiac degeneration	3
Myocardial failure (at ages 65 or over)	16

For 130 no associated condition was stated; for 95 senility alone was mentioned and for 73 senility (or senile) with some other cause. Heart failure was added to the description for 53 and syncope for 8. Bronchitis was mentioned for 35.

440–447. *Hypertensive disease*

There were 192 deaths assigned to these categories. Hypertension was specified as " benign " for 7 and as " malignant " for 10, no distinction being made for the remainder; so statistics for 440, 441 and for 444, 445 can have no meaning at present and will need to be combined with 443 and 447 respectively. Another difficulty arose at an early stage of introducing the new Classification, in that the phrases " without mention of heart " in the titles of 444–447, and " other heart involvement " in the section on hypertension in the Index, were not precisely defined and were subject to wide variations in interpretation.

Discussions with National Offices resulted in a tentative agreement that Nos. 440–443 should always take hypertension with any condition in 422 or 434, but not in 420, that Nos. 444–447 should not take hypertension with heart conditions in 420, 422, 434, 440–443, and that associations with other heart conditions should be subject to the ordinary rules, using 444–447 if hypertension is stated as underlying cause. (See supplement No. 6, Bulletin of the World Health Organization, 1953, page 35.) In the early part of 1950 when the sample now being analysed was coded this agreement was not fully operative and consequently categories 440–447 are dealt with as a whole in the analysis below, except where arteriolar nephrosclerosis (442, 446) is separated.

The associated heart conditions, excluding those with renal disease as well in 442 and 446, were specified on the certificates as follows:—

Heart " diseases "

Myocardial degeneration with:—
"Benign" hypertension..   1
"Essential" hypertension   5
"Chronic" hypertension   8
Hypertension or hyperpiesis   17
Myocarditis (chronic, senile or unqualified) with
   hypertension or hyperpiesis   14
Cardiovascular degeneration with hypertension
   or hyperpiesis   5
Cardiac infarct with malignant hypertension ..   4
Cardiac asthma with hypertension   1

Heart " failure "

"Congestive" heart (or cardiac or myocardial)
   failure with:—
"Benign essential" hypertension   2
"Essential" hypertension   4
Hypertension or hyperpiesis   30

"Left" ventricular (or cardiac or heart) failure
   with:—
"Essential" hypertension   6
Hypertension or hyperpiesis   7

"Hypertensive" heart (or cardiac) failure   ..   16

Heart (or cardiac) failure with:—
"Benign essential" hypertension   3
"Essential" hypertension   3
Hypertension or hyperpiesis   20

"Myocardial" failure (or insufficiency) with:—
"Essential" hypertension   3
Hypertension or hyperpiesis   6

In the sample of 4,000 deaths there were, therefore, 29 classed to coronary disease with mention of hypertension (see 420 above), and 55 attributed to hypertension with a definite heart "disease" not described as coronary, and in addition there were 100 deaths from hypertension with mention of some form of heart "failure".

There were 13 deaths classed to arteriolar nephrosclerosis or its synonyms (442, 446), specified as follows:—

arteriolar nephrosclerosis 1, arteriosclerotic nephritis 1, chronic nephritis due to arteriosclerosis 5, chronic interstitial nephritis due to arteriosclerosis 3, renal arteriosclerosis 1, hypertension of kidney 1, hypertension with renal and cardiac failure 1.

The remaining 24 comprised 7 attributed to hypertension with arteriosclerosis but no mention of cardiac or renal affection and 17 due to hypertension or hyperpiesis without mention of any cardiac, renal or arteriosclerotic condition (11 to 444, 6 to 445).

592.   *Chronic nephritis*

The index to the International Classification states (page 296) that association of hypertension with conditions in categories 590–593 does not affect the assignment.   According to an interpretation of the term '' arteriosclerotic nephritis '' in No. 446 (Supplement 6 of Bulletin of the World Health Organization, 1953, page 35), this includes the following when specified as due to arteriosclerosis:—nephritis NOS; chronic nephritis; Bright's disease, chronic or NOS; interstitial nephritis, chronic or NOS.   This resulted in 8 deaths in the sample being assigned to 446 as shown above.

There were 46 classified to No. 592, and of these 34 were specified as chronic nephritis, 10 as chronic interstitial, 1 as chronic diffuse, and 1 as uræmic coma.   Hypertension was mentioned for 11.

Proportion of bodies seen after death

The usual summary of the percentages of deaths for which the body was seen after death either by the certifying practitioner or by the coroner is given below. The figures for 1949 and 1950 are based on an examination of a sample of one medical certificate in seven.

	1928	1933	1947	1949*	1950*
Seen after death	51·0	53·7	60·9	63·3	66·8
Inquest or Coroners' P.M. without inquest or other cases reviewed by Coroners	11·2	11·2	14·0	15·7	16·7
Cases certified by Medical Practitioners	39·8	42·5	46·9	47·6	50·0
Not seen after death	48·5	46·1	38·8	36·3	32·8
No statement	0·5	0·2	0·3	0·4	0·4
Total	100·0	100·0	100·0	100·0	100·0
Total deaths in year	460,389	496,465	517,615	510,736	510,301

Both the proportion seen by certifying practitioners and the proportion investigated by coroners continued to increase. The statement by a certifying practitioner is made when he signs the medical certificate of cause of death and since there are likely to be occasions when he subsequently sees the body the proportion seen after death may be understated.

* Estimated from a sample of medical certificates.

Table XCIX.—Deaths by number of causes entered on certificates by sex and area, all ages

Area sampled	Sex	Deaths in hospital by number of conditions						Deaths elsewhere by number of conditions						Total
		1	2	3	4	5+	All	1	2	3	4	5+	All	All
London														
Bermondsey	M.	47	59	35	8	1	150	25	36	29	8	1	99	249
	F.	19	28	20	4	—	71	18	32	24	4	2	80	151
St. Marylebone	M.	15	43	32	6	6	102	23	46	32	8	2	111	213
	F.	10	39	23	10	4	86	18	47	29	6	1	101	187
Large towns														
Birmingham	M.	6	21	11	3	—	41	49	57	34	13	4	157	198
	F.	11	27	15	2	—	55	33	65	34	10	5	147	202
Bristol	M.	11	26	27	8	4	76	33	48	49	10	2	142	218
	F.	10	10	7	4	1	32	24	70	47	9	—	150	182
Liverpool	M.	51	66	31	4	1	153	20	30	12	3	1	66	219
	F.	37	48	24	6	—	115	15	33	15	3	—	66	181
Small towns in														
Northumberland county	M.	1	3	2	—	—	6	74	64	54	15	—	207	213
	F.	2	—	1	—	—	3	66	72	40	5	1	184	187
Nottingham county	M.	11	26	20	5	3	65	57	65	24	9	1	156	221
	F.	15	23	9	2	—	49	43	54	25	8	—	130	179
Southampton county	M.	15	21	17	7	1	61	29	63	37	6	—	135	196
	F.	11	22	12	2	—	47	39	65	36	17	—	157	204
Rural areas in														
Devonshire	M.	6	2	1	—	—	9	68	55	49	15	3	190	199
	F.	3	2	2	—	—	7	63	74	50	6	1	194	201
North Wales	M.	7	7	—	—	—	14	56	75	46	12	2	191	205
	F.	5	5	2	—	—	12	54	83	38	7	1	183	195
Totals														
London	M. & F.	91	169	110	28	11	409	84	161	114	26	6	391	800
Large towns	M. & F.	126	198	115	27	6	472	174	303	191	48	12	728	1,200
Small towns	M. & F.	55	95	61	16	4	231	308	383	216	60	2	969	1,200
Rural	M. & F.	21	16	5	—	—	42	241	287	183	40	7	758	800
All areas	M. & F.	293	478	291	71	21	1,154	807	1,134	704	174	27	2,846	4,000
All males	M.	170	274	176	41	16	677	434	539	366	99	16	1,454	2,131
All females	F.	123	204	115	30	5	477	373	595	338	75	11	1,392	1,869

Table C.—Deaths by number of causes entered on certificates at different ages of death

Place where certified, and number of conditions entered	Number of deaths by age groups							Per cent of all deaths at that age					
	0–	1–	35–	55–	65–	75+	All	0–	1–	35–	55–	65–	75+
Hospitals													
1	28	30	48	48	77	62	293	*38·4*	*35·7*	*25·2*	*22·4*	*24·8*	*22·1*
2	28	39	77	83	130	121	478	*38·4*	*46·4*	*40·3*	*38·8*	*41·8*	*43·1*
3	14	11	51	66	78	71	291	*19·2*	*13·1*	*26·7*	*30·8*	*25·1*	*25·2*
4	3	3	10	13	21	21	71	*4·0*	*3·6*	*5·2*	*6·1*	*6·7*	*7·5*
5 or more..	—	1	5	4	5	6	21	—	*1·2*	*2·6*	*1·9*	*1·6*	*2·1*
Total ...	73	84	191	214	311	281	1,154	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*
London and large towns (not hospital)													
1	6	17	44	43	60	88	258	*54·5*	*58·6*	*45·8*	*25·8*	*17·1*	*18·9*
2	1	12	25	65	153	208	464	*9·1*	*41·4*	*26·0*	*38·9*	*43·7*	*44·6*
3	4	—	20	44	105	132	305	*36·4*	—	*20·8*	*26·3*	*30·0*	*28·3*
4	—	—	6	14	28	26	74	—	—	*6·3*	*8·4*	*8·0*	*5·6*
5 or more..	—	—	1	1	4	12	18	—	—	*1·1*	*0·6*	*1·2*	*2·6*
Total ...	11	29	96	167	350	466	1,119	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*
Small towns and rural (not hospital)													
1	30	29	62	66	152	210	549	*61·2*	*56·9*	*41·0*	*28·4*	*30·4*	*28·2*
2	18	17	52	87	185	311	670	*36·7*	*33·3*	*34·4*	*37·5*	*37·0*	*41·8*
3	—	4	28	60	128	179	399	—	*7·8*	*18·6*	*25·9*	*25·6*	*24·1*
4	1	1	8	17	33	40	100	*2·1*	*2·0*	*5·3*	*7·3*	*6·6*	*5·4*
5 or more...	—	—	1	2	2	4	9	—	—	*0·7*	*0·9*	*0·4*	*0·5*
Total ...	49	51	151	232	500	744	1,727	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*
Total sample													
1	64	76	154	157	289	360	1,100	*48·1*	*46·3*	*35·2*	*25·6*	*24·9*	*24·2*
2	47	68	154	235	468	640	1,612	*35·4*	*41·5*	*35·1*	*38·3*	*40·3*	*42·9*
3	18	15	99	170	311	382	995	*13·5*	*9·2*	*22·6*	*27·7*	*26·8*	*25·6*
4	4	4	24	44	82	87	245	*3·0*	*2·4*	*5·5*	*7·2*	*7·1*	*5·8*
5 or more...	—	1	7	7	11	22	48	—	*0·6*	*1·6*	*1·2*	*0·9*	*1·5*
Grand total...	133	164	438	613	1,161	1,491	4,000	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*

Table CI.—Deaths by mode of entry of multiple causes on death certificates, age-groups and area

No. of conditions and mode of entry	Hospital deaths				Deaths not in hospitals							
					Large towns				Elsewhere			
	0–	35–	65+	All ages	0–	35–	65+	All ages	0–	35–	65+	All ages
Two causes												
On same line ...	3	8	14	25	—	3	12	15	1	1	8	10
On 2 lines of Part I	47	129	166	342	11	76	271	358	29	122	414	565
One in Part I, other in II ...	17	23	71	111	2	11	78	91	5	16	74	95
Three causes												
All in Part I ...	17	83	94	194	2	44	136	182	4	68	179	251
2 in I, 1 in II ...	4	28	46	78	2	18	92	112	—	18	119	137
1 in I, 2 in II ...	4	6	9	19	—	2	9	11	—	2	9	11
Four causes												
All in Part I ...	1	4	4	9	—	6	8	14	1	14	22	37
3 in I, 1 in II ...	5	15	31	51	—	9	29	38	—	8	36	44
2 in I, 2 in II ...	—	4	6	10	—	4	17	21	1	2	14	17
1 in I, 3 in II ...	—	—	1	1	—	1	—	1	—	1	1	2
Five or more ...	1	9	11	21	—	2	16	18	—	3	6	9
Total multiple entry certificates ...	99	309	453	861	17	176	668	861	41	255	882	1,178

Table CII.—Deaths by entry of duration of disease on death certificates

Entries of interval between onset and death (duration)	Hospital deaths				Other deaths				Total	
	No. in sample			Per cent	No. in sample			Per cent	No.	Per cent
	M.	F.	Ages 65+		M.	F.	Ages 65+			
One cause only. Total ...	170	123	139	*100*	434	373	510	*100*	1,100	*100·0*
Duration not stated ...	66	37	55	*35*	125	120	171	*30*	348	*31·6*
Duration stated ...	104	86	84	*65*	309	253	339	*70*	752	*68·4*
Multiple causes. Total ...	507	354	453	*100*	1,020	1,019	1,550	*100*	2,900	*100·0*
No duration stated ...	170	123	171	*34*	309	276	454	*29*	878	*30·3*
Duration stated for one only:										
In Part I	215	155	195	*43*	460	465	710	*45*	1,295	*44·6*
In Part II	—	3	2	—	—	3	2	—	6	*0·2*
Duration for one in I and other(s) in II										
Longer in I	4	1	4	*1*	14	12	21	*1*	31	*1·1*
Longer in II... ...	11	8	8	*2*	19	18	28	*2*	56	*1·9*
Durations stated for 2 conditions in I										
Without other duration										
Underlying longer ...	57	40	41	*11*	115	148	185	*13*	360	*12·4*
Equal durations ...	8	6	3	*2*	9	10	14	*1*	33	*1·1*
Underlying shorter										
Code unaffected ...	—	—	—	—	1	1	1	—	2	*0·1*
Code modified ...	1	—	—	—	2	2	3	—	5	*0·2*
With other duration(s)										
Correct order ...	39	17	28	*7*	87	80	126	*8*	223	*7·7*
Incorrect order										
Code unaffected ...	1	1	1	—	1	2	2	—	5	*0·2*
Code modified ...	1	—	—	—	3	2	4	—	6	*0·2*
Total certificates	677	477	592		1,454	1,392	2,060		4,000	

INTERNATIONAL HEALTH STATISTICS IN 1950

World Health Organization

Expert Committee on Health Statistics

The year's programme of meetings on health statistics opened with a series of three inaugural sessions of sub-committees of the Expert Committee on Health Statistics at which Dr. Percy Stocks, Chief Medical Statistician of the General Register Office, represented the parent body. These technical discussions culminated in the second session of the Expert Committee at which he presided. The composition of the Expert Committee and its subsidiary bodies, whose reports were published in the *World Health Organization Technical Report Series No.* 25, is given in Appendix E (page 215).

The *Sub-Committee on the Definition of Stillbirth and Abortion* met in Paris from 27th February to 3rd March with Professor Dugald Baird, Regius Professor of Midwifery, University of Aberdeen, in the Chair. In addition to proposing definitions of " live birth " and " fœtal death ", the Sub-Committee recommended improvements in reporting, registration and statistical tabulation, and gave guidance in the matter of certifying fœtal death and of calculating fœtal death rates. They also urged that studies, which had to be made before it would be possible to arrive at a satisfactory definition of immaturity, might be undertaken by national committees.

The meeting of the *Sub-Committee on the Registration of Cases of Cancer as well as their Statistical Presentation* was also held in Paris, from 6th to 10th March, under the Chairmanship of Dr. J. Clemmesen, Head of the Cancer Registry at Copenhagen. In the field of mortality statistics the Sub-Committee defined the range of diseases recommended for inclusion within the statistical definition of " cancer ". Their Report also touched on difficulties experienced in classification; discussed the tabulation of multiple causes; emphasized the importance of continued effort to assess and improve the accuracy of diagnosis stated on medical certificates; and reviewed studies, which had been made at the General Register Office, on geographical variation in mortality from cancer of specific sites. The Sub-Committee considered progress made in cancer registration in England and Wales and elsewhere and made recommendations on therapeutic statistics. Recommendations were also made on the *Annual Returns on the Results of Radiotherapy in Cancer of the Uterine Cervix,* first issued under the auspices of the League of Nations Health Organization.

The *Sub-Committee on Hospital Statistics* was convened in Geneva from 11th to 14th April with Dr. Marie Lindhardt, Head of the Statistical Section of the Danish National Health Service, in the Chair. Recommendations of a general character were supplemented by others specifically concerned with mental hospitals, tuberculosis hospitals, the use of the International Statistical Classification as a diagnostic cross index, obstetrics, operations and anæsthetics, and multiple admissions.

The *Expert Committee on Health Statistics* held their second session in Geneva from 18th to 21st April. Some of the statistical definitions proposed by the sub-committees were accepted and referred to the World Health Assembly in order that governments might be encouraged to use them; others were commended as providing a basis for further study and experiment. The Committee

strongly urged the early implementation of the resolution of the Second World Health Assembly (WHA2.28) concerning the establishment of a clearing centre where problems arising in the application and interpretation of the *International Statistical Classification of Diseases, Injuries and Causes of Death* might be resolved internationally, thus avoiding the danger of lack of comparability in statistics based on different solutions to those problems. They recommended that effect should be given to another resolution of the Second Assembly (WHA2.38) which envisaged that WHO Secretariat should include a unit responsible for coordinating the activities of National Committees on Vital and Health Statistics. The force of this latter recommendation was underlined by a series of subjects listed as ripe for practical study by national agencies.* The Committee also recommended that morbidity statistics should be the subject of their next meeting and that arrangements should be made for co-opted experts with special knowledge to attend it.

Third World Health Assembly

The United Kingdom Delegation to the Third World Health Assembly, held in Geneva from the 8th to the 27th May, 1950, was led by Dr. Melville Mackenzie, Ministry of Health. Mr. A. E. Joll and Dr. Percy Stocks of the General Register Office attended as Advisers. The Delegation welcomed the raising of the health statistics section of the Secretariat to the dignity of a Division and the other related administrative arrangements which had been notified to the Executive Board when they met earlier in the year. The main discussion on the Report of the Expert Committee and other statistical questions took place in the Assembly's Committee on Programme† and a draft resolution was included in the Report of the Committee‡ The resolutions adopted by the Assembly are reproduced in Appendix F. The Assembly adopted the definitions of live birth and foetal death as well as the statistical definition of cancer approved by the Expert Committee; the Director-General of WHO was requested to give them as much publicity as possible. When approving the health statistics programme for 1951, the Assembly made special mention of the establishment of the clearing centre for problems arising in the application of the *International Statistical Classification of Diseases, Injuries and Causes of Death* and endorsed the Expert Committee's proposal that additional specialists should be co-opted for their forthcoming session on morbidity statistics. A proposal by the Delegate of Ceylon that an Expert Committee should be appointed to consider population problems resulted in the endorsement of a resolution of the Executive Board which had requested the Director-General " to co-operate on a wide basis with the United Nations and the specialized agencies on questions concerned with population problems ".§

Executive Board

The Executive Board held two sessions in Geneva during the year. Their fifth session took place from 16th January to 2nd February and the sixth from 1st to 9th June. At the first of these the Board were notified of changes in the statistical secretariat to which reference has already been made. At the later session they authorized publication of the Report on the Expert Committee's second session,‖ and requested the Director-General to take all steps necessary

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* Some of these had already been the subject of study in this country, notably mortality of cancer by geographical areas (see *General Register Office Studies on Medical and Population Subjects*, No. 1) and the collection of statistics of mental disorders causing admission to mental institutions (see *Registrar General's Statistical Review of England and Wales for the year 1949*, Supplement on General Morbidity, Cancer and Mental Health).
† Off. Rec. of the WHO, No. 28, p. 230.
‡ Off. Rec. of the WHO, No. 28, p. 466.
§ Off. Rec. of the WHO, No. 25, p. 9.
‖ EB 6.R28—Off. Rec. of the WHO, No. 29, p. 12.

" for establishing national WHO committees in the light of the views expressed by the Third World Health Assembly ".* The latter resolution was not restricted to National Committees on Vital and Health Statistics.

Changes pursuant to Nomenclature Regulations, 1948

The first World Health Assembly made the first legislative enactment under the Constitution of the Organization. This enactment, which bears the short title *Nomenclature Regulations*, 1948, is designed to secure uniformity in the compilation and presentation of mortality and morbidity statistics.† These Regulations came into force on 1st January, 1950; they are binding on Member States of the World Health Organization who do not inform the Director-General of the Organization (within a year after receiving due notice of the Regulations) of their intention to make any reservations in their observance of them. During the year under review effect was given to the Regulations in England and Wales in two important respects.

Article 19 requires that the medical certificate of cause of death should conform as far as possible to the model given in the Annex to the Regulations. To meet this requirement the form of medical certificate then in use in England and Wales was modified by adding a panel to provide for statements of the approximate interval between onset of illness and death. The proposed change had been considered by the Registrar General's Advisory Committee on Medical Nomenclature and Statistics and by the Council of the British Medical Association‡ and was acceptable to both bodies because of its desirability for statistical purposes and in view of the fact that the additional information in its relation to individuals would not be accessible to any person outside the General Register Office.

The other important change was in the content of the medical tables published in Part I of the *Registrar General's Statistical Review of England and Wales for the year* 1950. The main feature of this change was the use of the *International Statistical Classification of Diseases, Injuries and Causes of Death*, which represented the results of the sixth decennial revision (1948) of the former International List. Notes and tables showing comparability between this classification and the fifth (1938) revision of the list, which had been in use since 1940, will be found in the medical text volume of the *Registrar General's Statistical Review of England and Wales for the years* 1948–1949. The new material in Part I of the Review included a table (19) showing causes of death for different age groups in the conurbations and density summaries, while the double classification of accidents by external cause and by nature of injury was reflected in the expansion of other tables (17 and 18).

WHO Statistical Publications

In January the World Health Organization issued the first publication in the *Technical Report Series*. Reports issued during the year included those of the first and second sessions of the Expert Committee on Health Statistics, published as numbers 5 and 25 in the series.

Volume III of the *Epidemiological and Vital Statistics Report*, issued on a monthly basis throughout the year, included a number of special studies of which the following may be mentioned: the second part of Dr. Pascua's paper on the " Evaluation of Mortality in Europe during the Twentieth Century " appeared in the combined number 2 and 3, the first part of the paper having been published in the issue for April 1949; the incidence of poliomyelitis in the

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* EB 6.R5—*Ibid.*, p. 3.
† The text of the Regulations may be found in the *Manual of the International Statis'ical Classification of Diseases, Injuries and Causes of Death*, pages 371–376.
‡ *Brit. Med. Jour.* Supplement, Vol. I, 1950, p. 51.

world during the period 1947–49 was the subject of a paper by Dr. M. G. Freyche in the January issue; and a study by Dr. J. B. McDougall on "Tuberculosis Mortality 1937–1949" formed the main subject of the October number.

Brussels Treaty Organization

In accordance with arrangements made by the Ministry of Health in connexion with the Brussels Treaty of 1948 Dr. Logan and Mr. Blaikley of the General Register Office with Mr. Hogan, Registrar-General for Scotland, visited France, Belgium and Holland in November, to study procedure for collecting vital and medical statistics in these countries and the uses made of them.

In France they visited the Institut National de la Statistique et des Études Économiques whose functions, as part of the Statistique Générale de la France, include census taking, estimation of population and the collection of vital statistics; the Institut National d'Études Demographiques, which is responsible for studying and commenting upon population statistics; and the Institut National d'Hygiène, whose responsibilities include the collection and publication of certain morbidity (including cancer) statistics.

Their programme in Belgium covered the Institut National de Statistique and the Service de la Statistique Nosologique of the Ministère de la Santé Publique et de la Famille. The functions of these two departments correspond broadly to those of their French equivalents, there being no counterpart in Belgium to the separate French organization for population studies.

Visits in Holland included the office of the Medical Officer of Public Health, the central government department concerned with population registers, the Central Bureau of Statistics and the medical records branch of the Royal Dutch Army. As in France and Belgium, the Central Bureau of Statistics is responsible for collecting vital statistics, while work in the field of morbidity rests with the health department.

The study of differences in organization and allocation of functions was of considerable value in itself and in comparison with United Kingdom practice, notably the arrangements made in France for decentralizing statistical work. In the field of vital statistics, the emphasis on the secrecy of medical records and the arrangements made to preserve it were of particular interest, as also were the use of population registers for the purpose of preparing estimates. No attempt had been made in any of the three countries to collect national statistics over the whole field of morbidity, but arrangements for cancer registration in France, for statistics of tuberculosis in Belgium and preliminary plans for cancer registration in Holland formed the subjects of a useful exchange of views to which the British representatives were able to contribute the results of experience gained on this side of the channel.

Symposium on Geographical Pathology and Demography of Cancer

This Symposium was held at Regent's Park College, Oxford, from the 29th July to the 5th August by the Council for the Co-ordination of International Congresses of Medical Sciences under the auspices of the World Health Organization and the United Nations Educational, Scientific and Cultural Organization. Dr. Stocks contributed a paper on variation of cancer mortality with environmental factors in which he presented preliminary results from studies on the mortality from cancer of various sites in large towns of England and Wales, excluding London, for the period 1921 to 1939.

Sixth International Congress of Radiology

Dr. Stocks presided at a Symposium on the presentation of results in the treatment of cancer which formed part of a programme of the Congress held in London from the 23rd to the 29th July.

APPENDIX A.—MEDICAL STATISTICS BRANCH OF THE GENERAL REGISTER OFFICE, 31st DECEMBER, 1950

Administrative: S. G. Holloway (Assistant Secretary)

R. M. Blaikley (Principal)

Professional: P. Stocks, C.M.G., M.D., F.R.C.P.
(Chief Medical Statistician)

W. P. D. Logan, B.Sc., M.D., D.P.H. (Medical Statistician)

D. MacKay, M.A., M.B. (Medical Statistician)

Miss E. M. Brooke, M.Sc. (Statistician)

Executive: P. A. Phillips (Senior Executive Officer)

C. E. Horton (Higher Executive Officer)

H. G. Corbett (Higher Executive Officer)

P. J. Cook (Higher Executive Officer)

APPENDIX B.—MEMBERSHIP OF THE REGISTRAR GENERAL'S ADVISORY COMMITTEE ON MEDICAL NOMENCLATURE AND STATISTICS, 1950

Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., F.F.R. (*Chairman*).

J. Boyd, Esq., C.B.E., M.D., F.R.C.P.I., K.H.P. (from 16th August, 1950).

Sir Allen Daley, M.D., F.R.C.P., K.H.P.

Professor Ernest Finch, M.D., M.S., F.R.C.S.

F. H. K. Green, Esq., C.B.E., M.D., F.R.C.P.

C. F. Harris, Esq., M.D., F.R.C.P.

Professor A. Bradford Hill, D.Sc., Ph.D.

A. E. Joll, Esq.

Professor A. J. Lewis, M.D., F.R.C.P.

A. Massey, Esq., C.B.E., M.D., K.H.P.

P. L. McKinlay, Esq., M.D., F.R.S.(Ed.).

Professor W. C. W. Nixon, M.D., F.R.C.S., F.R.C.O.G.

W. N. Pickles, Esq., M.D., M.R.C.P.

A. H. T. Robb-Smith, Esq., M.D., M.R.C.P.

Percy Stocks, Esq., C.M.G., M.D., F.R.C.P.

Professor R. E. Tunbridge, O.B.E., M.D., F.R.C.P.

Sir Lionel Whitby, C.V.O., M.C., M.D., F.R.C.P.

Miss A. L. Winner, O.B.E., B.Sc., M.D., M.R.C.P.

Secretary :

L. M. Feery, Esq. (until 7th September, 1950) ⎫
R. M. Blaikley, Esq.   ⎬ (General Register Office).
                                              ⎭

APPENDIX C.—COMMITTEES* ON MEDICAL SUBJECTS ON WHICH OFFICERS OF THE GENERAL REGISTER OFFICE SERVED DURING THE YEAR 1950

Accidents in the Home,
  Standing Inter-Departmental Committee.

International Organizations Committee,
  Population and Vital Statistics Working Party.
  Inter-Departmental Panel on International Health.

Medical Nomenclature and Statistics Advisory Committee.

Medical Research Council,
  Statistics Committee.

Ministry of Pensions,
  Committee on Cardio-vascular disease and Mortality rates among Amputees.

Nuffield Hospital Provincial Trust,
  Bureau of Health and Sickness Records Committee.

Royal College of Physicians,
  Nomenclature of Diseases Committee.
  Prophit Executive Committee.

Royal Society of Medicine,
  Epidemiology and State Medicine Section Council.

Royal Statistical Society Council.

World Health Organization,
  Expert Committee on Health Statistics.
  Sub-Committee on the Definition of Stillbirth and Abortion.
  Sub-Committee on the Registration of Cases of Cancer as well as their Statistical Presentation.
  Sub-Committee on Hospital Statistics.

APPENDIX D.—ARTICLES ON MEDICAL SUBJECTS BY OFFICERS OF THE GENERAL REGISTER OFFICE PUBLISHED DURING 1950

Stocks (P.).	Fifty Years Progress in Medicine as shown by Vital Statistics, *British Medical Journal*, No. 4,644, 54–57, 1950. Also in Fifty Years of Medicine, *B.M.A.*, London, pp. 247–257, 1950.
Stocks (P.).	Morbidity Statistics—Do we need them? *American Journal of Public Health*, Vol. 40, No. 6, 670–673, 1950.
Stocks (P.).	Vital Statistics of Tuberculosis in England and Wales. *The Practitioner*, No. 987, 212–222, 1950.
Stocks (P.).	Cancer of the Stomach in the Large Towns of England and Wales, 1921–39. *British Journal of Cancer*, Vol. IV., No. 2, 147–157, 1950.

* A list of the committees on non-medical subjects is published in the *Registrar General's Statistical Review* for the five years 1946–50, Text, Civil.

Stocks (P.).	Vital Statistics. *The Medical Annual for* 1949, 67th year, 397–402, 1950.
Stocks (P.).	Contributions of Statistics to World Health. *Bulletin of the World Health Organization*, Vol. 2, 731–741, 1950.
Stocks (P.).	Methods of Measuring Results in the Treatment of Cancer. *Journal of Faculty of Radiologists*, Vol. I, No. 3, 167–187, 1950.
Logan (W. P. D.).	Poliomyelitis, 1950: Paralytic and Non-Paralytic. Monthly Bulletin of the Ministry of Health, Vol. 9, 196–202, 1950.
Logan (W. P. D.).	Mortality in England and Wales from 1848 to 1947. Population Studies, Vol. IV, No. 2, 1950.
Logan (W. P. D.).	Mortality from Diphtheria: The Recent Trend compared with Scarlet Fever, Whooping Cough and Measles. *The Medical Officer*, No. 2208, 217–219, 1950.
Logan (W. P. D.).	Illness, Incapacity, and Medical Attention among Adults, 1947–49. *The Lancet*, No. 6608, 773–776, 1950.
Logan (W. P. D.).	Some Recent Developments in Health Statistics—International, National, and Local. *Public Health*, No, 11, Vol. LXIII, 212–215, 1950.
Brooke (E. M.).	Relative Incidence of Gastric and Duodenal Ulcer, *British Medical Journal*, No. 4,678, 560—561, 1950.

APPENDIX E.—COMPOSITION OF THE W.H.O. EXPERT COMMITTEE ON HEALTH STATISTICS AND ITS SUB-COMMITTEES

Expert Committee on Health Statistics (Second Session)

Members:

Dr. D. Curiel, Chief, Division of Epidemiology and Vital Statistics, Ministry of Health and Social Welfare, Caracas, Venezuela.

Dr. P. F. Denoix, Chef des Services Techniques et de la Section du Cancer, Institut National d'Hygiène, Paris, France.

Dr. H. L. Dunn, Chief, National Office of Vital Statistics (U.S. Public Health Service), Washington, D.C., U.S.A.

*Dr. M. Kacprzak, Professor of Hygiene, Director, State School of Hygiene, Warsaw, Poland.

Dr. P. Stocks, Chief Medical Statistician, General Register Office, London (Chairman).

Representative of the United Nations:

F. E. Linder, Chief, Population and Vital Statistics Section, Statistical Office, United Nations.

Observer:

Dr. M. de Viado, Social Security Section, I.L.O.

Secretariat:

Dr. M. Pascua, Deputy Director, Division of Health Statistics, W.H.O. (Secretary).

Dr. Marie Cakrtova, International Nomenclature of Diseases and Causes of Death Section, W.H.O.

Sub-Committee on the Definition of Stillbirth and Abortion (First Session)

Members:

Dr. D. Baird, Regius Professor of Midwifery, University of Aberdeen, United Kingdom. (Chairman).

Dr. M. A. van Bouwdijk Bastiaanse, Professor of Obstetrics and Gynæcology, University of Amsterdam, Netherlands.

Dr. E. F. Daily, Director, Division of Health Services, U.S. Children's Bureau, Social Security Administration, Washington, D.C., U.S.A. (Rapporteur).

Dr. L. Dérobert, Professeur agrégé à la Faculté de Médecine de l'Université de Paris, France.

F. Fraser Harris, Director, Health and Welfare Division, Dominion Bureau of Statistics, Ottawa, Canada.

Member of W.H.O. Expert Committee on Health Statistics:

Dr. P. Stocks, Chief Medical Statistician, General Register Office, London.

Secretary:

Dr. M. Pascua, Deputy Director, Division of Health Statistics, W.H.O.

Sub-Committee on the Registration of Cases of Cancer as well as their Statistical Presentation (First Session)

Members:

Dr. J. Clemmesen, Chief, Cancer Registry, Copenhagen, Denmark (Chairman).

Dr. H. F. Dorn, Biometrics Section, National Cancer Institute, National Institutes of Health (U.S. Public Health Service), Washington, D.C., U.S.A. (Rapporteur).

Members of W.H.O. Expert Committee on Health Statistics:

Dr. P. F. Denoix, Chef des Services Techniques et de la Section du Cancer, Institut National d'Hygiène, Paris, France.

Dr. P. Stocks, Chief Medical Statistician, General Register Office, London.

Consultant:

Dr. J. Heyman, Editor, Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix, Stockholm, Sweden.

Secretary:

Dr. M. Pascua, Deputy Director, Division of Health Statistics, W.H.O.

Sub-Committee on Hospital Statistics (First Session)

Members:

Dr. E. L. Crosby, Director, Johns Hopkins Hospital, Baltimore, Md., U.S.A.

*Dr. P. Foltz, Medical Director, Ospedale San Giovanni di Torino, Turin, Italy.

Dr. Marie Lindhardt, Head, Statistical Section, National Health Service, Copenhagen, Denmark (Chairman).

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* Indicates member unable to attend.

Professor J. Rasuhin, Professor of Social Medicine, University of Zagreb, Yugoslavia.

Member of W.H.O. Expert Committee on Health Statistics:

Dr. P. Stocks, Chief Medical Statistician, General Register Office, London.

Observer:

Dr. M. de Viado, Social Security Section, I.L.O.

Secretariat:

Dr. M. Pascua, Deputy Director, Division of Health Statistics, W.H.O. (Secretary).

Dr. Marie Cakrtova, International Nomenclature of Diseases and Causes of Death Section, W.H.O.

APPENDIX F.—RESOLUTIONS OF THE THIRD WORLD HEALTH ASSEMBLY ON HEALTH AND RELATED STATISTICS

W.H.A.3.6. Expert Committee on Health Statistics: Report on the Second Session

The Third World Health Assembly

1. NOTES the report of the Expert Committee on Health Statistics on its second session,* and

2. THANKS the experts for their work;

3. ADOPTS, as recommendations under Article 23 of the Constitution and Article 17 of Regulations No. 1 of the World Health Organization,† the definitions of " live birth " and " fœtal death ", from sections 1 and 2 of the report of the Sub-Committee on the Definition of Stillbirth and Abortion as well as the recommendations of that sub-committee made on " the registration and tabulation of live births and infant deaths " in section 3 of its report;‡

4. ADOPTS also as recommendations under the said provisions of the Constitution and Regulations No. 1, the statistical definition of " cancer " given in the report of the Sub-Committee on the Registration of Cases of Cancer as well as their Statistical Presentation;§

5. REQUESTS the Director-General to give these definitions as much publicity as possible with a view to their wide acceptance;

6. AGREES to submit to the various nations for study and experimental use all the other pertinent recommendations contained in the reports of these three sub-committees and to suggest to national committees on vital and health statistics (or their equivalent) the studies mentioned in the said report (section 1, paragraphs 3 and 4 of resolution).

W.H.A.3.71.2. Health Statistics

The Third World Health Assembly

1. APPROVES the proposed programme for health statistics for 1951;

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* World Hlth. Org. techn. Rep. Ser. 1950, 25.
† Off. Rec. World Hlth. Org. 13, 349.
‡ World Hlth. Org. techn. Rep. Ser. 1950, 25.
§ Off. Rec. World Hlth. Org. 23, 63.

2. RESOLVES to request the Executive Board and the Director-General, in conformity with the considerations and opinions expressed on the report of the Expert Committee on Health Statistics by the *ad hoc* committee of the Executive Board,* to see if means can be found to implement as soon as possible the recommendations of the expert committee concerning the establishment of a clearing-centre for problems arising in the application of the International Statistical Classification of Diseases, Injuries and Causes of Death, and of a focal unit for maintaining relationship with national committees on vital and health statistics, as recommended by the Second World Health Assembly;†

3. ENDORSES the recommendation made by the expert committee that a joint session of the expert committee and certain co-opted members, specialists in the sphere of morbidity statistics, be convened in 1951 with the object of obtaining an orientation, evaluation and selection of the projects requiring international action in this field;

4. REFERS the question raised by the delegation of France on "Certain Aspects of Hospital Statistics"‡ to the Expert Committee on Health Statistics.

W.H.A.3.7. Population Problems

The Third World Health Assembly

ENDORSES the resolution on population problems adopted by the Executive Board at its fifth session.§

W.H.A.3.57. Technical Assistance Programme

The Third World Health Assembly

RESOLVES that within the programme of technical assistance, as contained in *Official Records* No. 23, should be included those two items in *Official Records* No. 18 concerned with health statistics‖ and the preliminary surveys for the joint F.A.O./W.H.O. programme for increased food production.¶

APPENDIX G.—NOTES ON THE WEATHER IN ENGLAND AND WALES DURING THE YEAR 1950

The year 1950 was wet, particularly during February, the summer months July to September, and November. Other notable features of the weather were the mildness of the greater part of March, the warmth of June, particularly the first week, the exceptionally cold and snowy December, the severe snow-storm experienced in the south-east on the night of April 25th–26th and the destructive tornado which moved from Wendover to Linslade on May 21st.

Mean temperature for the year exceeded the average for the period 1906–35 by 0·4° F., the deviations from the average for the districts ranging from + 0·6° F. in the south-east to + 0·1° F. in the north-west. The first half of January and the greater part of March were notably mild and the first week in June was unusually warm. On the other hand the week ending on January 28th was very cold and December was exceptionally cold. Extreme temperatures in the screen included 92° F. in London (Camden Square) on June 7th and

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* See annex 2.
† Off. Rec. World Hlth. Org. 21, 28.
‡ See annex 11.
§ Off. Rec. World Hlth. Org. 25, 9, item 3.1.
‖ Now included in resolution WHA3.71.2.
¶ Off. Rec. World Hlth. Org. 18, 62, item 7.4.2.5.3 and also 21, 29, resolution W.H.A.2.41.

6° F. at Droitwich on December 6th. The table gives in ° F. the monthly deviation from the average mean temperature.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
+0·3	+2·3	+3·7	+0·1	+0·1	+4·0	+0·4	+0·3	−0·5	0·0	−0·4	−5·6

The general precipitation expressed as a percentage of the average for the period 1881–1915 was 114. Rainfall was less than the average on parts of the south-east and east coasts, in rather small scattered areas in the Midlands, and on the north coast of Wales. On the other hand more than 120 per cent of the average occurred in some areas in the west of the country as well as in small areas near Peterborough, Middlesbrough, Hull, Cambridge and Cromer. More than 130 per cent of the average was received at Larkhill and Porton in Wiltshire, at Weston-super-Mare and at Ilfracombe. With regard to individual months, January, March and October were much drier than usual, January being the driest January since 1907. In contrast February was the wettest February, apart from February 1923, since 1869, and the summer months July to September were all wet, September excessively wet. The heavy rainfall in September damaged the harvest and caused serious flooding in many parts. November, too, was very wet. The table gives the monthly rainfall expressed as a percentage of the average:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
54	220	60	135	90	77	137	147	196	44	172	76

Among heavy falls in 24 hours were 3·27 in. at Blaenau Festiniog, Merioneth on August 11th, 4·25 in. at Ulpha, Cumberland and 4·00 in. at Cwm Dyli, Snowdon on September 6th, 4·14 in. at Hafod Fawr and 4·02 in. at Blaenau Festiniog, both in Merioneth on September 23rd and 4·31 in. at Llydaw Intake, Snowdon, on September 25th.

Thunderstorms occurred locally in each month of the year. The storms of February 10th and 11th were accompanied by heavy hail locally in the south-west. One of the most notable thunderstorms of the year occurred during the Buckinghamshire tornado on May 21st; at Ipsden, Oxfordshire, 1·63 in. of rain and hail fell in about 20 minutes, a very rare fall, and hailstones remained in heaps, where drifted, for almost 24 hours. On the track of the tornado, the largest individual stone, an irregular mass of ice with several centres, measured 6½ inches round. In a thunderstorm on June 2nd, 2·33 in. of rain fell in 72 minutes at Hampton Waterworks, Middlesex. Thunderstorms occurred very frequently in July; at Jersey on the 9th, heavy rain and hail occurred and it was reported that the tomato crop on one farm was practically destroyed.

Considerable snowfall occurred on January 30th and 31st north of a line roughly from mid-Wales to Norfolk. A notably severe snowstorm for the time of year occurred in south-east England during the night of April 25th–26th and caused much damage to trees, shrubs and telegraph poles and dislocated telephone services in the area. Snow occurred frequently in December and was heavy at times, particularly during the first four days, from the 13th to the 17th and on the 30th; drifting snow and ice-bound roads caused dislocation of transport services in some areas.

The general sunshine expressed as a percentage of the average for the period 1906–35 was 101, the percentages for the districts ranging from 97 in England, E., to 104 in England, S.E. Although the duration of bright sunshine differed little from the average on the whole, it compared very unfavourably with that for 1949, leaving the impression that 1950 was a dull year. With regard to individual months, compared with the average January and September were dull, February was very dull in the south-west but sunny for the time of year

in the north-east, March was mainly sunny, while April was rather dull in the north but fairly sunny in the south and Midland counties, and May was dull in the east and sunny in the west. June was a sunny month generally, particularly in eastern and Midland districts. In July and August sunshine was about average but July was rather dull in the south-west. In December, percentages of the average were very variable but broadly speaking sunshine exceeded the average in the west and north and in an area extending roughly from Totnes to the Isle of Wight and stretching north to Ross-on-Wye and was less then the average in the east; at Greenwich it was the dullest December since 1897. The table gives the monthly sunshine expressed as a percentage of the average:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
71	103	109	105	93	122	100	99	79	100	95	102

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    All ages by sex (11 years)   7
    Month of occurrence and sex   23

Death Rates :
    All ages by sex (11 years)   8

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    Tables 7 and 17 .. .. A
    ,, 7, 17 and 23 .. .. B
    ,, 7, 8, 17 and 23 C

Thus, an item which appears in the three tables 7, 17 and 23 is indicated by the letter " B " the column headed " Part I Table No."

A reference in arabic numerals in one of the two right-hand columns against a group of ses indicates that in that table or page can be found information relating to the whole of t group of causes. A similar reference in italics indicates information relating to one or more the causes within the group, but not to the group as a whole.

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me and resident institution, accidents in (·0, ·7 of E870–936)	—	18A	**Ankylostomiasis (129)**	—	A
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achinery (E912)	—	A, 8, 18A, 18C	**Arteries, diseases of (450–456)**	57	C
tor and other road vehicle (E810–845)	173–177, 182–188	C, *9*, *19, 20*	**Arteriosclerotic heart disease** (*see* **Heart disease**)		
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